VOLUME XXIII NUMBER TEN

THE NATIONAL GEOGRAPHIC MAGAZINE

OCTOBER, 1912

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Map of China SUPPLEMENT
Size 17 x 23 inches, in Colors

The Wonderful Canals of China
With 35 Illustrations and 5 Maps F. H. KING

The Most Extraordinary City in the World
With 60 Illustrations SHAOCHING H. CHUAN, M. D.

China's Treasures
With 50 Illustrations FREDERICK McCORMICK

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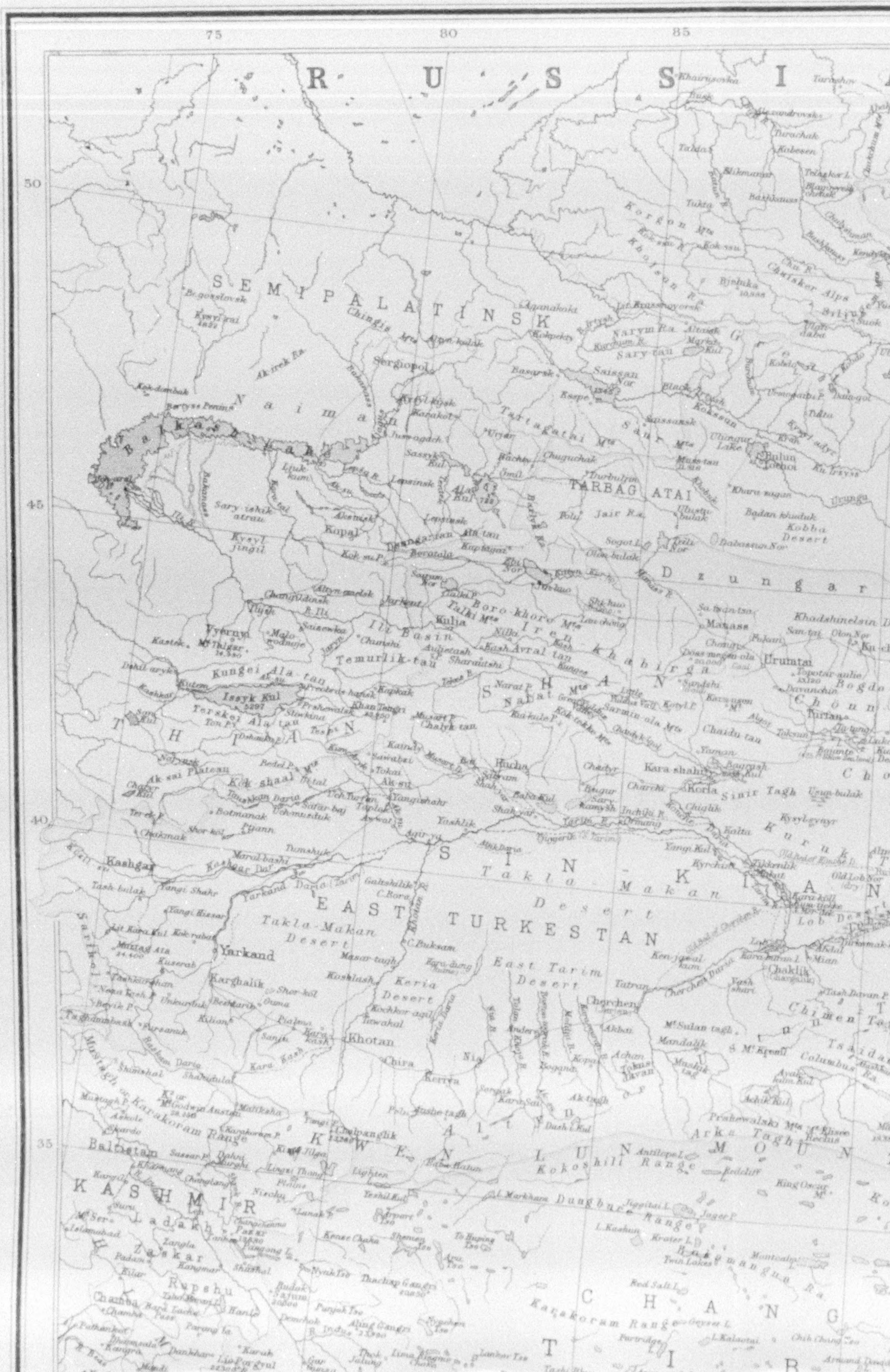

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Sergiopol
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TARBAG ATAI
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Dzungar
Ili Basin
Kulja
Vyernyi
Kungei Ala tau
Issyk Kul
Terskei Ala tau
Temurlik-tau
Iren khabirga
Boro khoro Mts
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Lepsinsk
Sary-ishik atrau
Kysyl jingil
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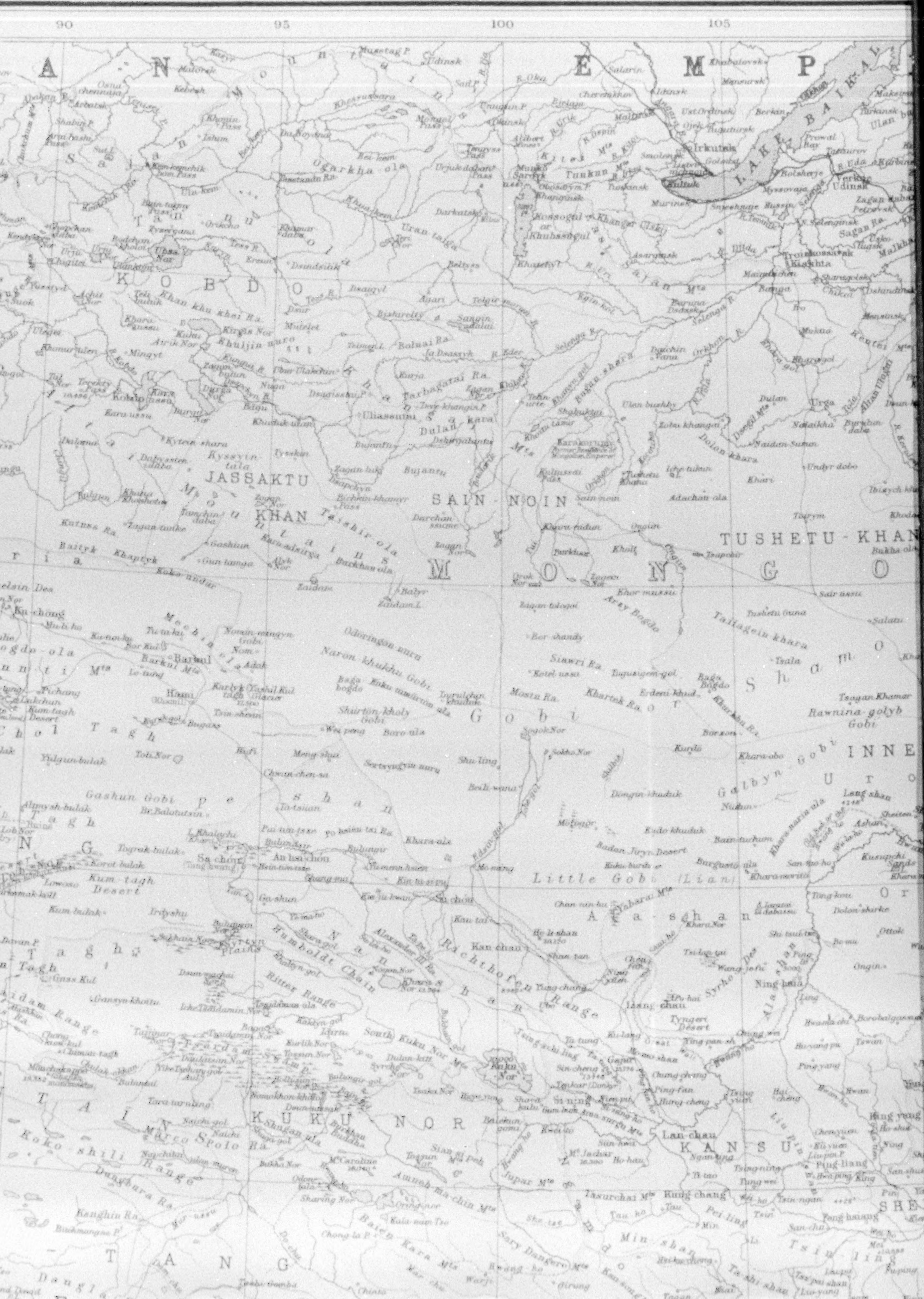
MAP OF CHINA AND ITS TER

PREPARED BY J. G. BARTHOLOMEW—GILBERT H. GROSVENOR, EDIT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Little Gobi
Barkul
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Kan chau
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Richthofen Range
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KANSU
Koko shili Range
Marco Polo Ra.
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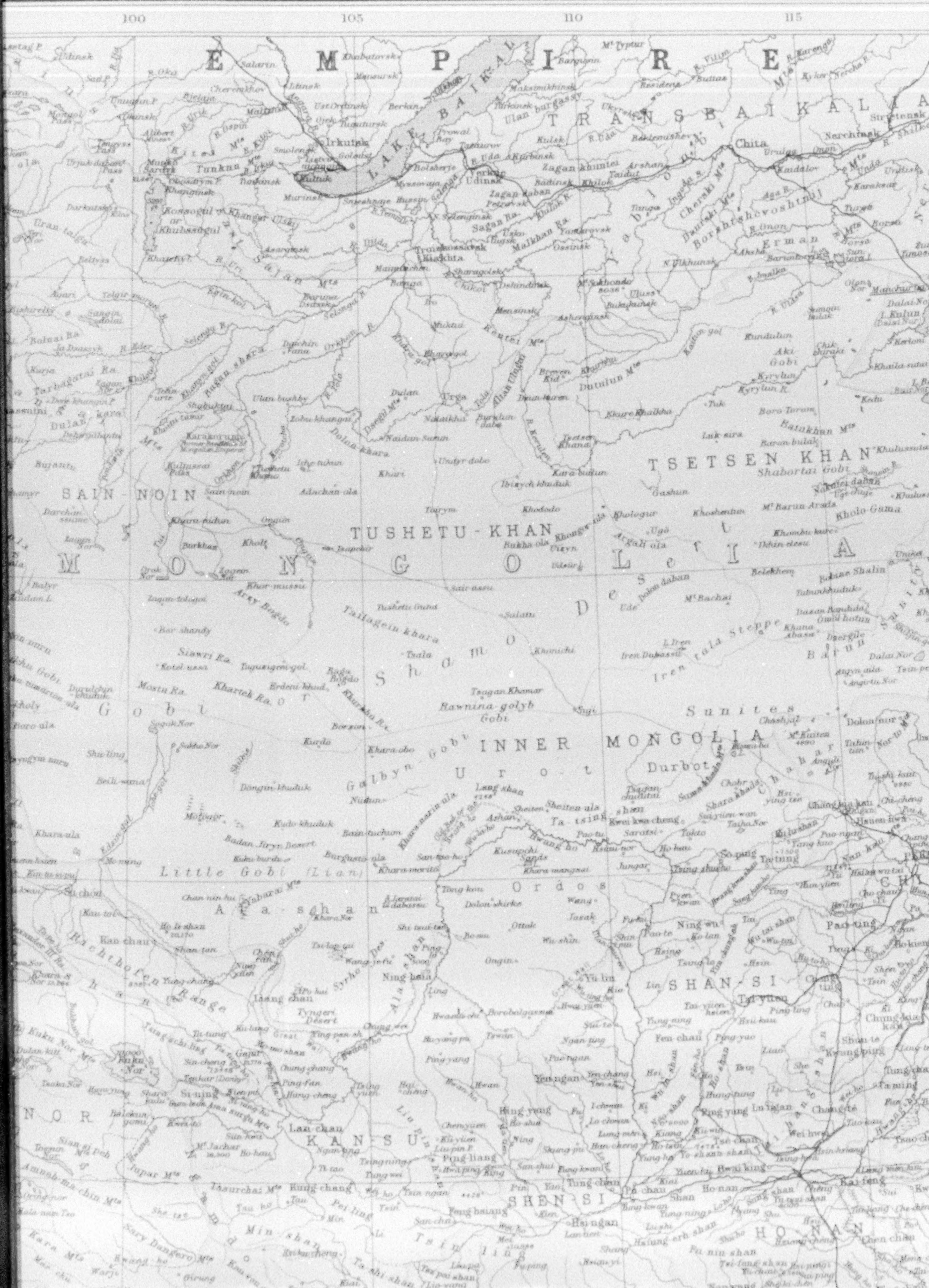
CHINA AND ITS TERRITORIES

PREPARED BY J. G. BARTHOLOMEW—GILBERT H. GROSVENOR, EDITOR.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Kossogol or Khubsugul
Troitskossavsk
Kiakhta
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Borshtshovoshtni
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TSETSEN KHAN
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Galbyn Gobi
Durbot
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Ordos
Ala-shan Mts
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Kwei kwa cheng
Richthofen Range
Kuku Nor
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Lan-chau
KAN-SU
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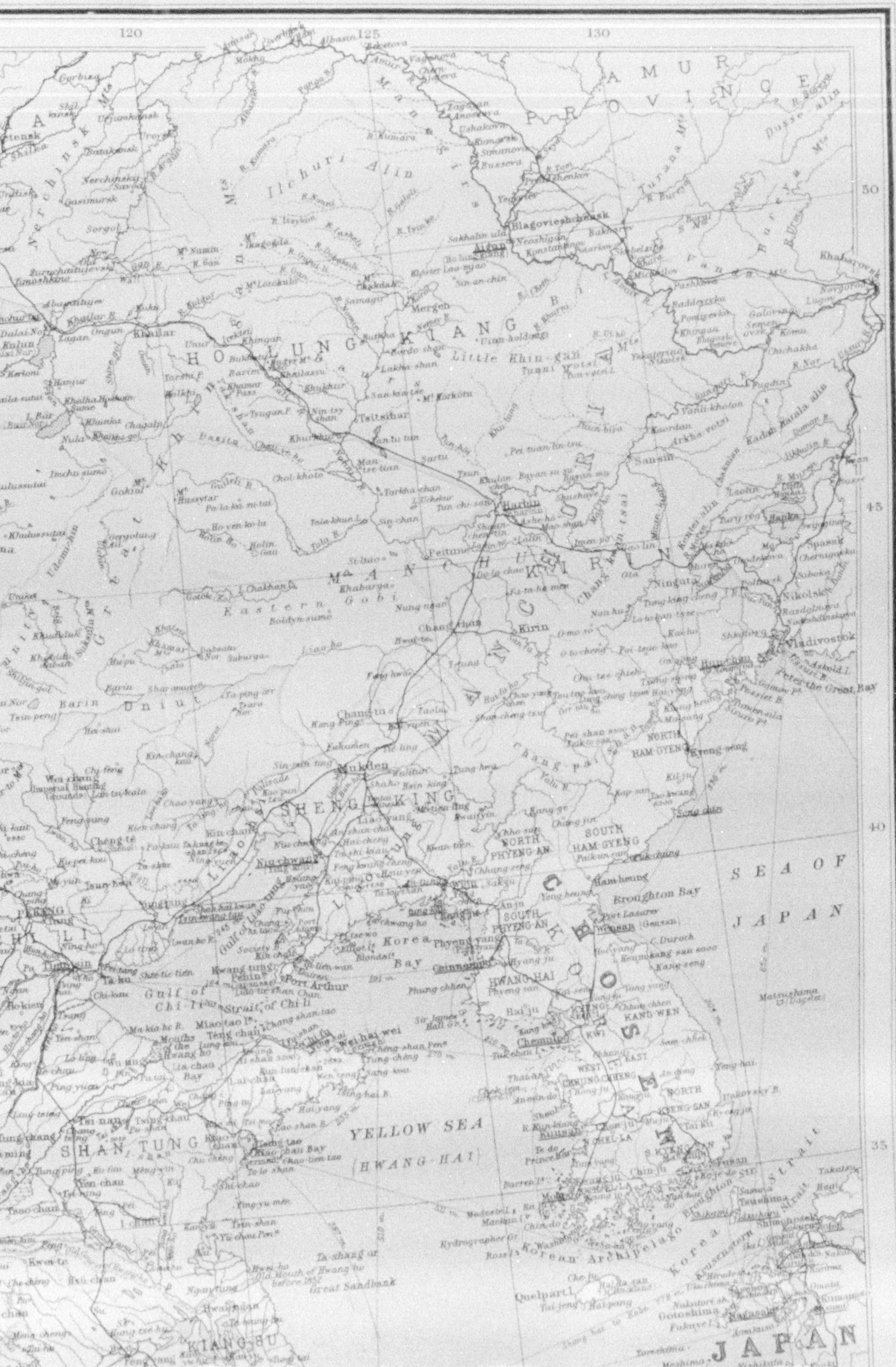

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Little Khingan
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Mergen
Harbin
Sansin
Ningata
Kirin
Nikolsk
Vladivostok
Peter the Great Bay
Eastern Gobi
MANCHURIA
KIRIN
Mukden
SHENG KING
Niuchwang
Liao yang
Port Arthur
Gulf of Liao tung
Korea Bay
Gulf of Chi-li
Strait of Chi-li
Tientsin
Taku
CHI-LI
Wei-hai-wei
Teng chau
SHAN TUNG
Tsi nan
Kiao chau Bay
YELLOW SEA
(HWANG-HAI)
KIANG SU
Great Sandbank
Old Mouth of Hwang ho before 1852
KOREA
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SOUTH HAM-GYENG
NORTH PHYENG-AN
SOUTH PHYENG-AN
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KANG-WEN
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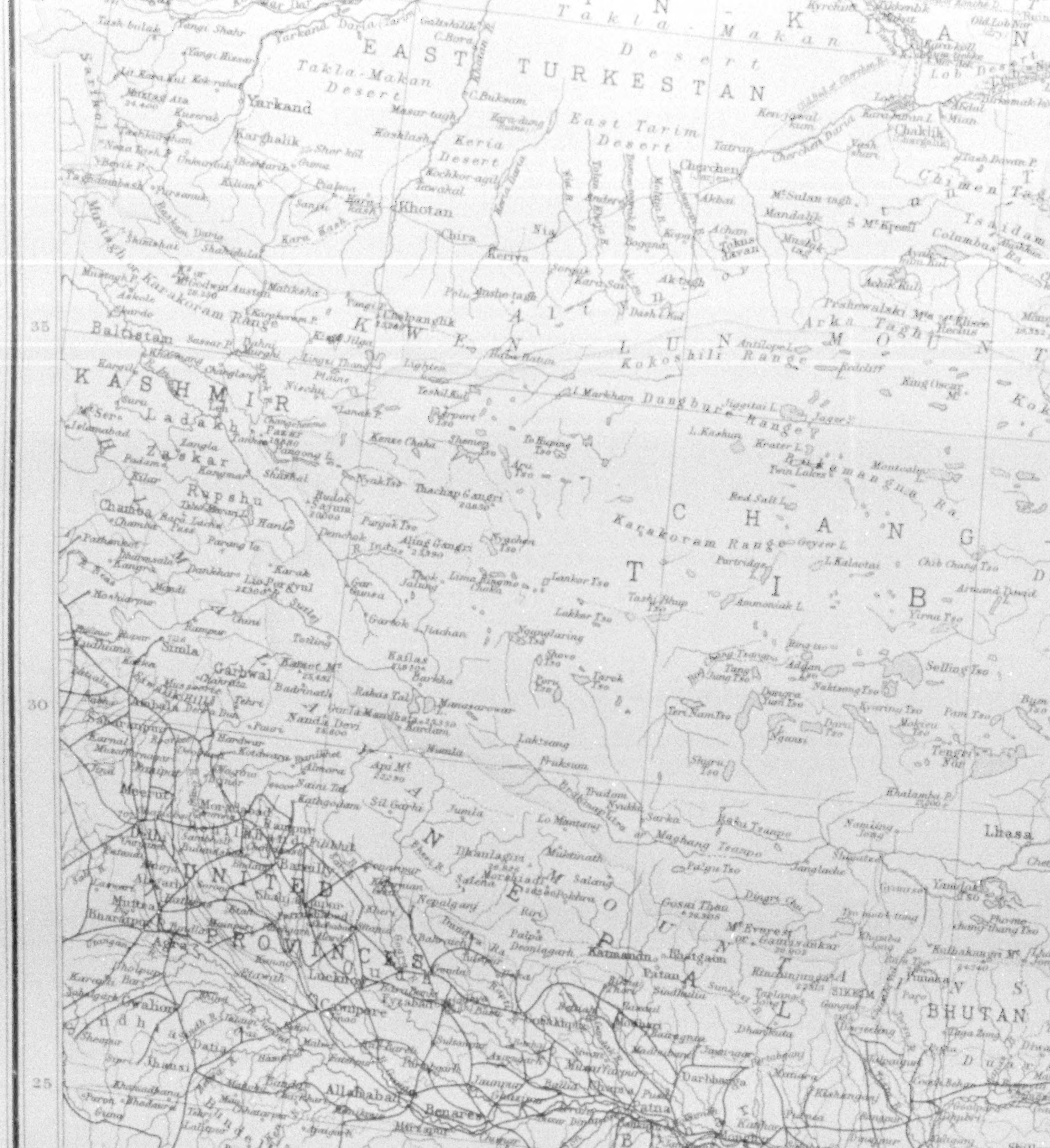
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Kokoshili Range
Karakoram Range
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Rupshu
Chamba
Simla
Garhwal
Almora
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Kumaun
Khatmandu
Mt Everest or Gaurisankar
SIKKIM
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Delhi
Meerut
Agra
Bareilly
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Lucknow
Cawnpore
Allahabad
Benares
Patna
Gaya
Gwalior
Jhansi
Bundelkhand
Bhopal
Saugor
Jubbulpore
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Ranchi
Nagpur
Raipur
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Bastar
Orissa
Cuttack
Puri
Balasore
BENGAL
CALCUTTA
Dacca
Mouths of the Ganges and Brahmaputra
Mouths of the Mahanadi
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Railways open
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The Edinburgh Geographical Institute

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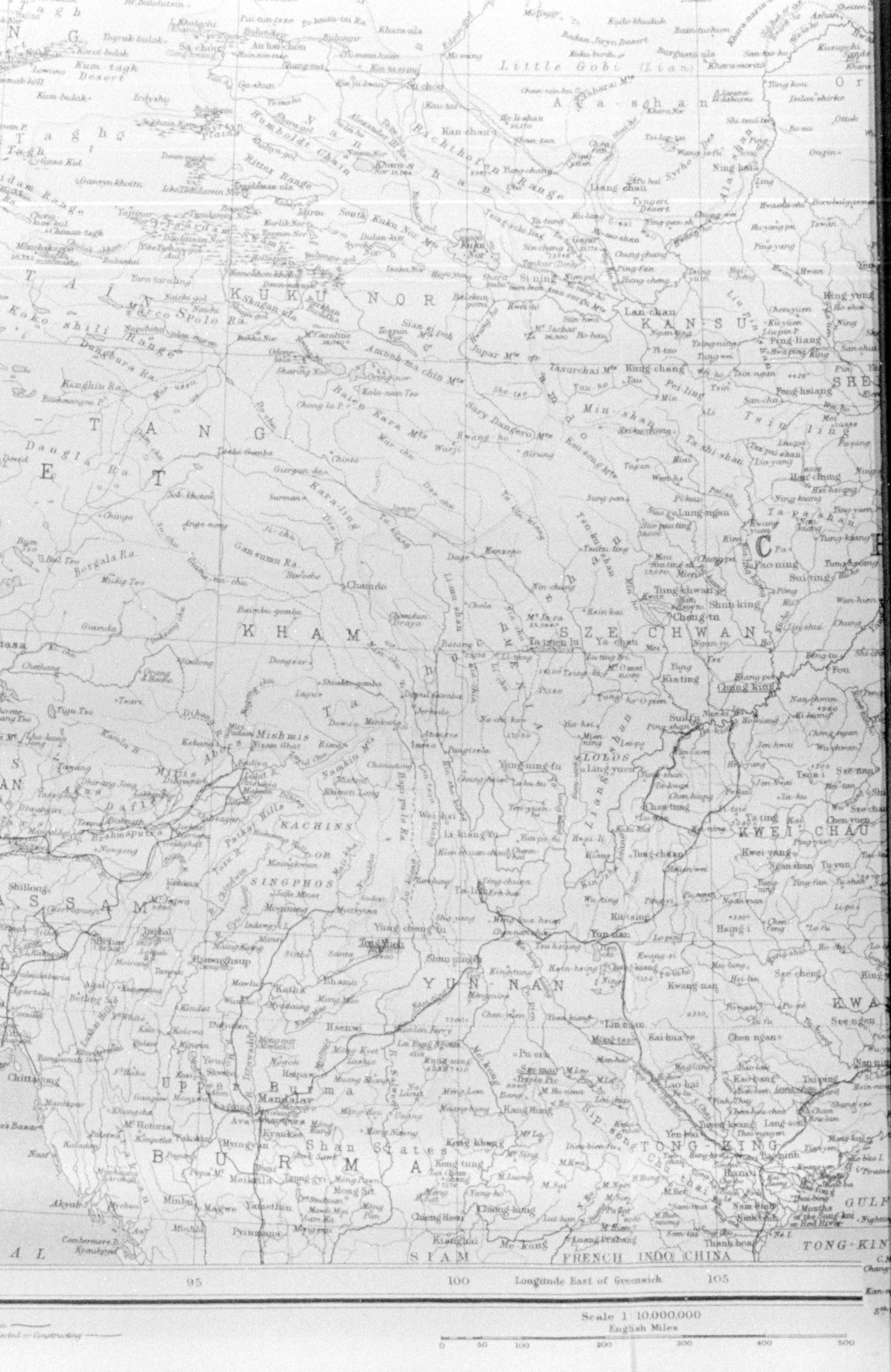
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Richthofen Range
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Koko shili Range
Dangbura Ra.
Amneh ma chin Mts
Baian Kara Mts
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Tsin ling
TANGUT
Dangla Ra.
KHAM
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Ta tsien lu
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ASSAM
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Patkai Hills
KACHINS
SINGPHOS
Myitkyina
Bhamo
Teng yueh
LOLOS
Yun nan
YUN NAN
KWEI CHAU
Kwei yang
Upper Burma
Mandalay
BURMA
Shan States
Chittagong
Akyab
Meiktila
Yamethin
Pyinmana
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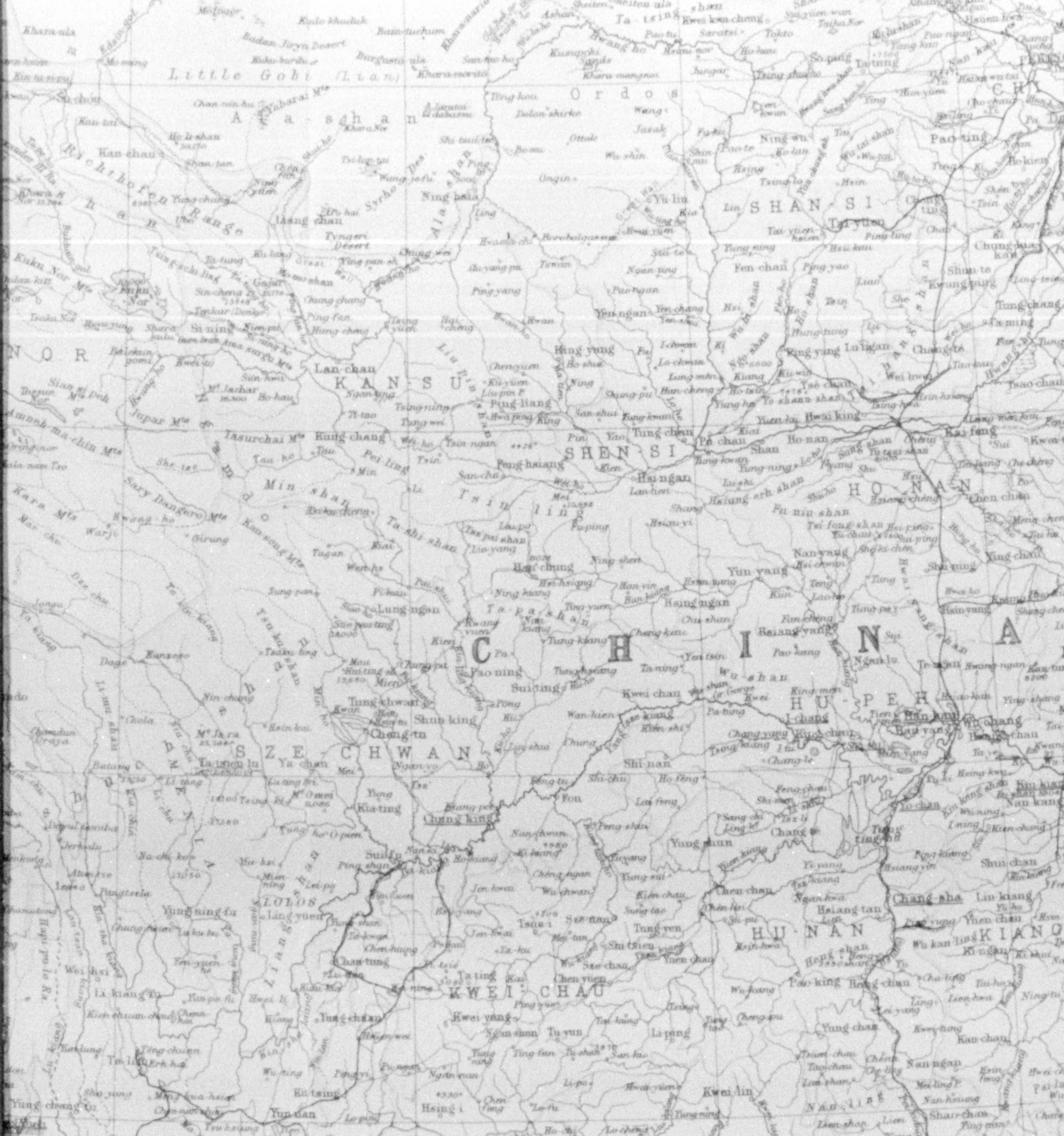
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Macao
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Lei-chau
Pakhoi
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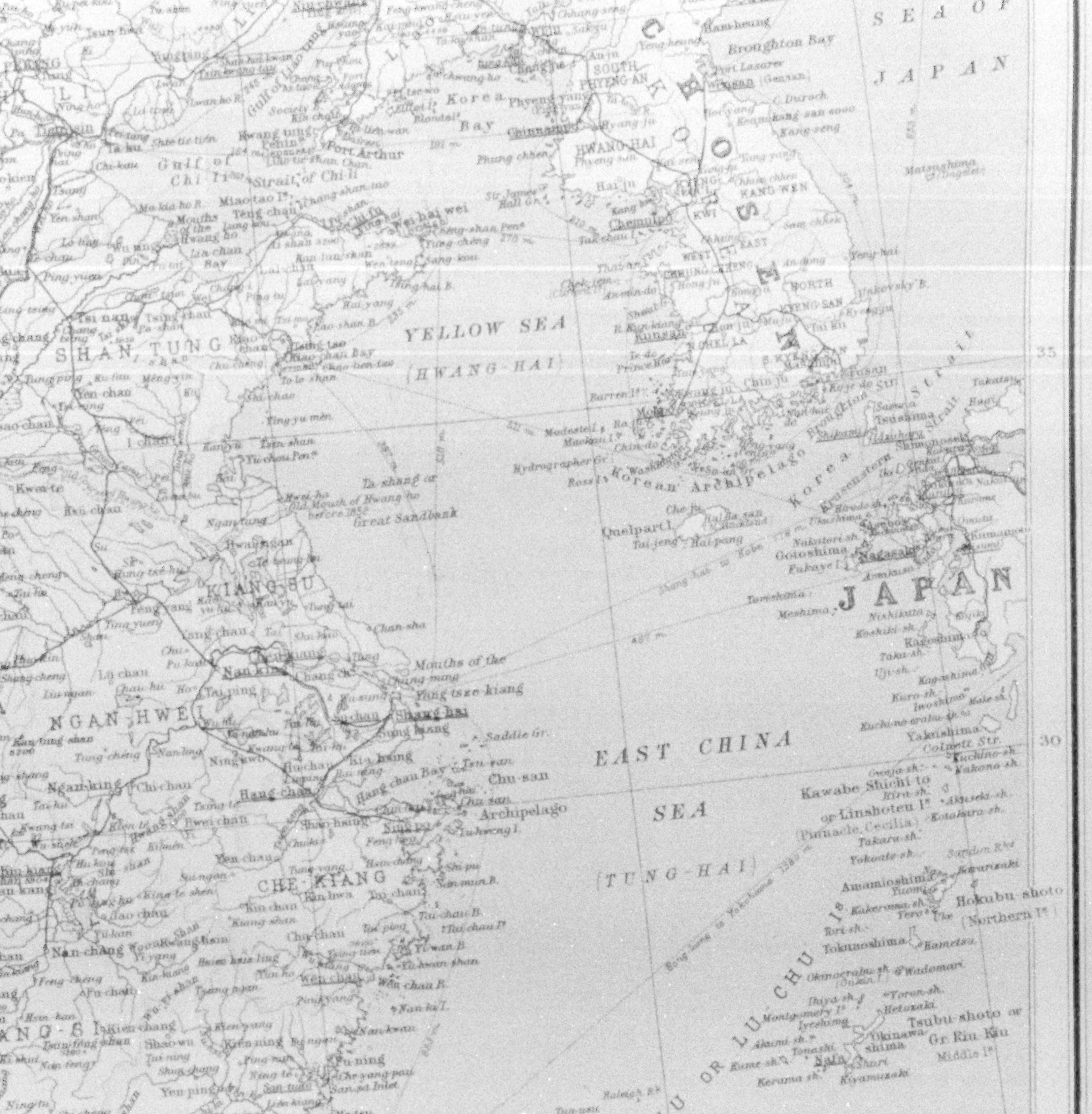
Ports in China, open by treaty
are underlined. Shanghai


SEA OF JAPAN
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(HWANG-HAI)
SHAN TUNG
KIANG-SU
NGAN-HWEI
CHE-KIANG
FO-KIEN
EAST CHINA SEA
(TUNG-HAI)
JAPAN
RIU KIU OR LU CHU Is
TAIWAN
(FORMOSA)
Gulf of Chi-li
Strait of Chi-li
Port Arthur
Wei-hai wei
Korea Bay
Korean Archipelago
Korea Strait
Quelpart I.
Nagasaki
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Chu-san Archipelago
Hang-chan Bay
Nan-king
Fu-chau
Amoy
Swatau
Formosa Str.
Bashi Channel
Balintang Channel
Babuyan Is
Tropic of Cancer
Miyako (Yaeyama) Group
Okinawa shima
Tokunoshima
Amamioshima
Hokubu shoto (Northern Is)
Kawabe Shichi to or Linshoten Is
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ETYMOLOGY

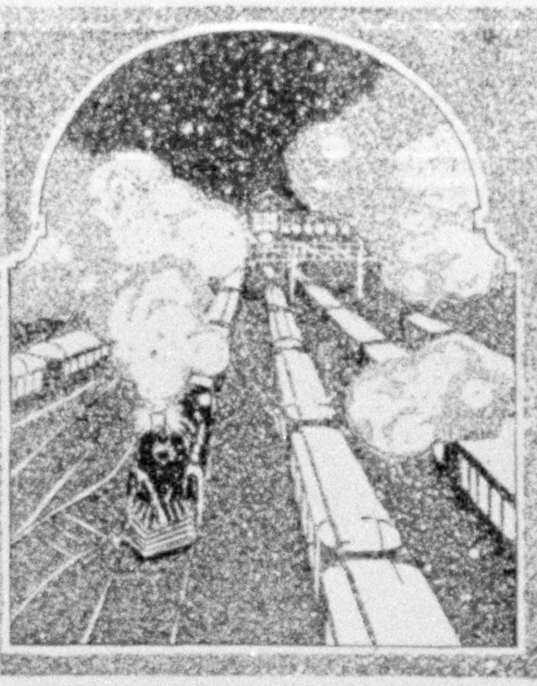
Fu	- city	1st rank
Ting	,,	2nd ,,
Chau	,,	3rd ,,
Hsien	,,	4th ,,
Hai	-	sea
Ho, Kiang		river
Hu	-	lake
Hwang	-	yellow
Ling	-	mountain chain or pass
Mo	-	desert
Nan	-	south
Pei	-	north
Si	-	west
Tai	-	island
Tung	-	east
Sha	-	sand
Shan	-	mountain or mountain chain
Wei	-	fort

y treaty to Foreign Commerce
nghai

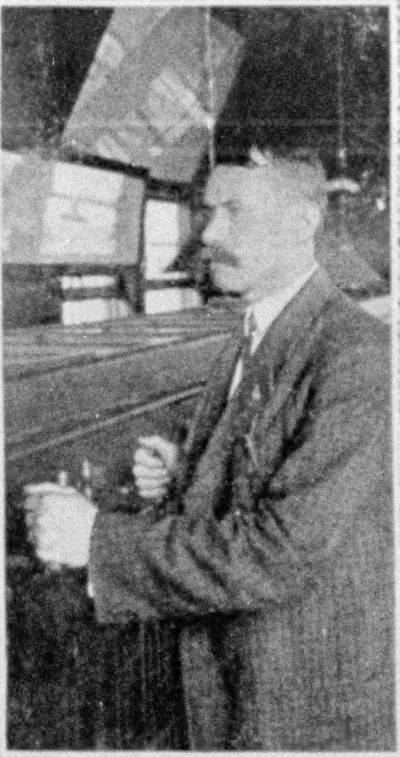
John Bartholomew & Co.

XUM

Towerman E. F. Heide, of the Rock Island Lines, has carried a Hamilton Watch for 10 years with entire satisfaction.



Where Accuracy of Time is Vital



W. E. Brown, another Rock Island Towerman, who has for 6 years carried a Hamilton that is famous for its accuracy.

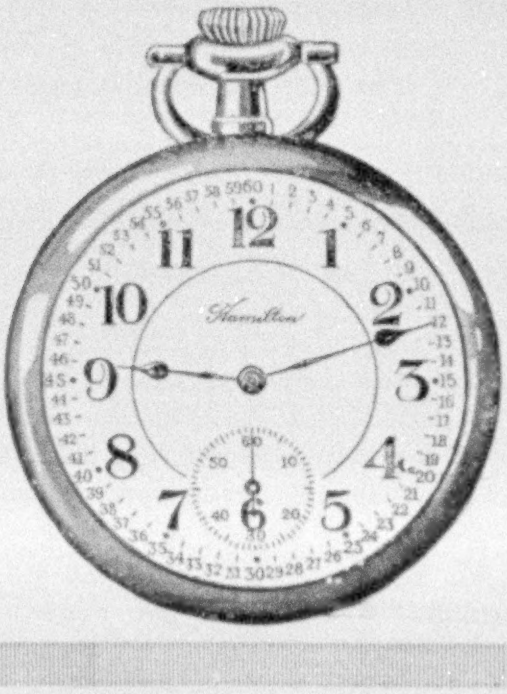
Railroad Men who want something better than a good watch choose the Hamilton. Over one-half (almost 56%) of the Engineers, Conductors, Firemen and Trainmen on American Railroads maintaining Official Time Inspection carry

The Hamilton Watch

The watch shown below is Hamilton No. 992—the 16-size "Railroad Timekeeper of America." We equip any railroad watch we sell with safety numerical dial without extra charge.

Write for "The Timekeeper"

a book about watches, containing advice about how to buy a watch, that everyone interested in the purchase of a fine watch can profitably read. It contains pictures, descriptions and price list of various Hamilton Models.



Hamilton Watches are made in all standard sizes. They range in price from $12.25 for our 17-jewel movement to $125.00 for our 23-jewel (thin-model) gold watch. Your jeweler can supply you with a Hamilton Movement for your present watch-case. 12-size sold complete only.

Hamilton Watch Co.
Lancaster, Pa.

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Conservation *for* Policyholders Decisively Exemplified *in the* Postal Life Insurance Company

When you come to think it over—

It isn't necessary or advisable to deal with an agent when you want to arrange life insurance.

From first to last, the *agency* way costs you extra money.

❧

When you want to find out about a policy for any purpose—to protect the family, educate the young folks, for endowment, for business use—the rational way is to deal *direct* with the POSTAL LIFE.

You thus escape commissions, branch-office expense, collection fees and exactions by the various States; furthermore, you get full *official information* which is in *black and white* and binding on the Company.

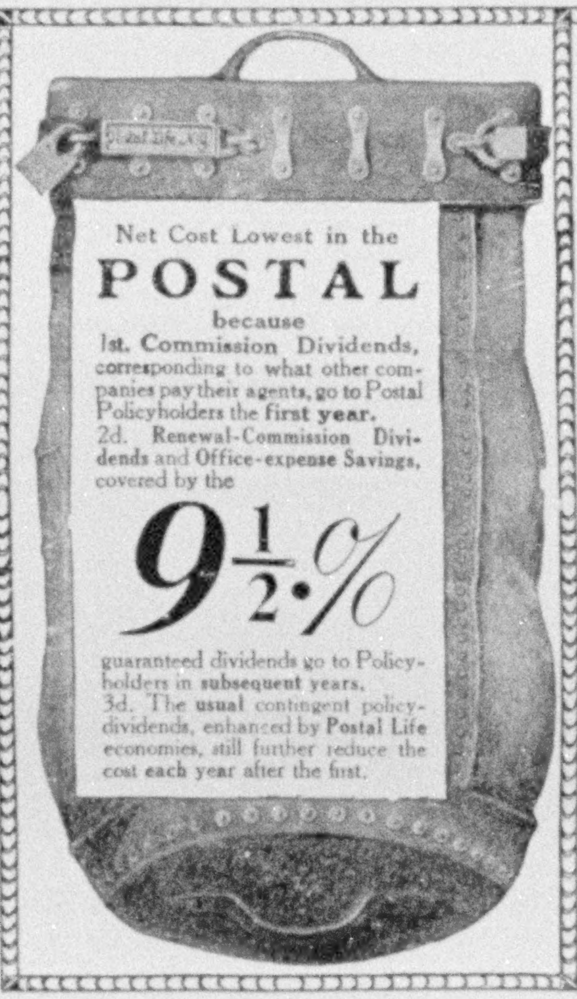
❧

The POSTAL LIFE INSURANCE COMPANY is the only American company that wholly eliminates agency expense: the result is *genuine conservation in life-insurance.*

The saving is *decisive* and *permanent*, making the net cost of your insurance in the POSTAL LIFE *lower than in any other company.*

❧

It is always good business to cut out the middleman when you *can*, but you can't always do it.



Net Cost Lowest in the

POSTAL

because

1st. Commission Dividends, corresponding to what other companies pay their agents, go to Postal Policyholders the **first year.**

2d. **Renewal-Commission Dividends** and **Office-expense Savings,** covered by the

9½%

guaranteed dividends go to Policyholders in **subsequent years.**

3d. The **usual** contingent policy-dividends, enhanced by **Postal Life** economies, still further reduce the cost **each year** after the first.

In arranging a POSTAL Policy, you *can* cut him out and save money for yourself just as hundreds have done and are doing in constantly increasing numbers.

Why not write to the POSTAL?

It has ample capital and resources to meet every demand *now* and *in the future.* It is a *large* Company with more than $10,000,000 of assets.

It issues all standard forms of legal-reserve insurance, and all its policies are approved by the critical New York State Insurance Department.

❧

ITS LIBERAL OPTIONS AND LARGE DIVIDENDS enable you, among other things, to add to the face of your Policy a larger amount of *paid-up insurance* **than is possible in any other company.**

❧

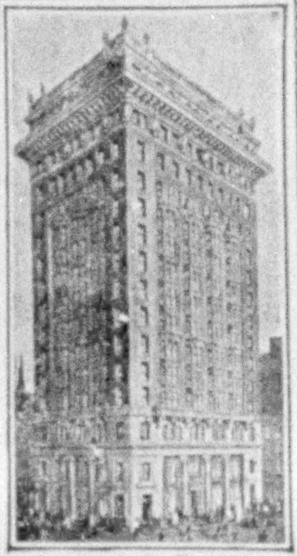
ITS OPTIONAL PREMIUM PRIVILEGE gives you the right to deposit premiums monthly, quarterly, semi-annually or annually as desired and without consulting the Company.

❧

It has policyholders in every State of the Union and in Canada, including Americans residing in foreign countries.

And these policyholders are its *friends;* they are *satisfied* and always speak good words for the Company when occasion serves.

❧ ❧ ❧ ❧



Postal Life Building

Write at once and find out the exact sum the Company will save you at your age on any standard form of contract—Whole-life, Limited-Payment Life, Endowment or on a

Postal-Life Child's Welfare Policy

No agent will be sent to visit you: the POSTAL LIFE dispenses with agents. Call at the office or write for full official information. Simply say:

Mail me insurance-particulars as per advertisement in NATIONAL GEOGRAPHIC for October

In your letter be sure to give:

1. Your occupation. 2. The exact date of your birth.

Address

POSTAL LIFE INSURANCE COMPANY

The Only Non-Agency Company in America

WM R. MALONE, *President.*

35 Nassau Street, New York

STRONG POSTAL POINTS

First: *Old-line legal-reserve insurance*—not fraternal or assessment.

Second: *Standard policy reserves,* now more than $10,000,000. *Insurance in force* more than $50,000,000.

Third: *Standard policy provisions,* approved by the State Insurance Department.

Fourth: Operates under *strict State requirements* and subject to the United States postal authorities.

Fifth: *High medical standards* in the selection of risks.

Sixth: *Policyholders' Health Bureau* arranges one free medical examination each year, if desired.

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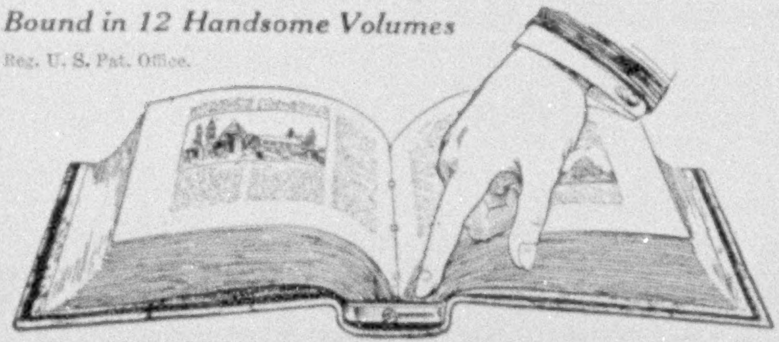

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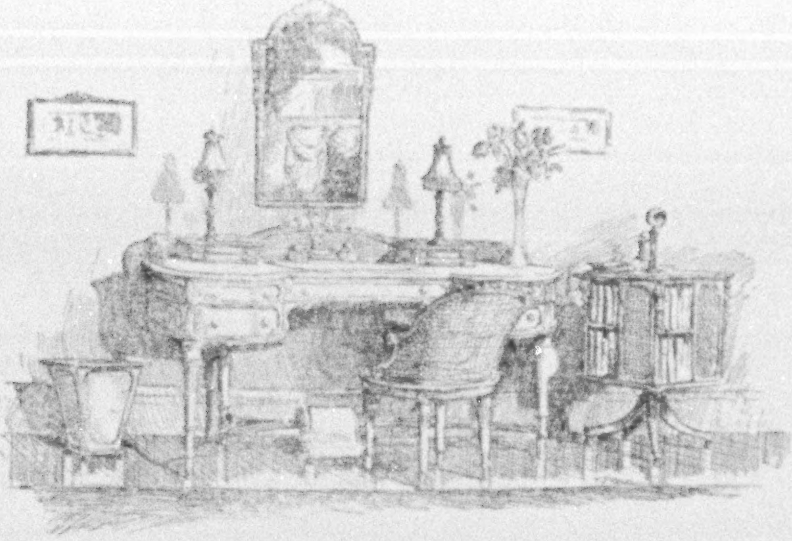

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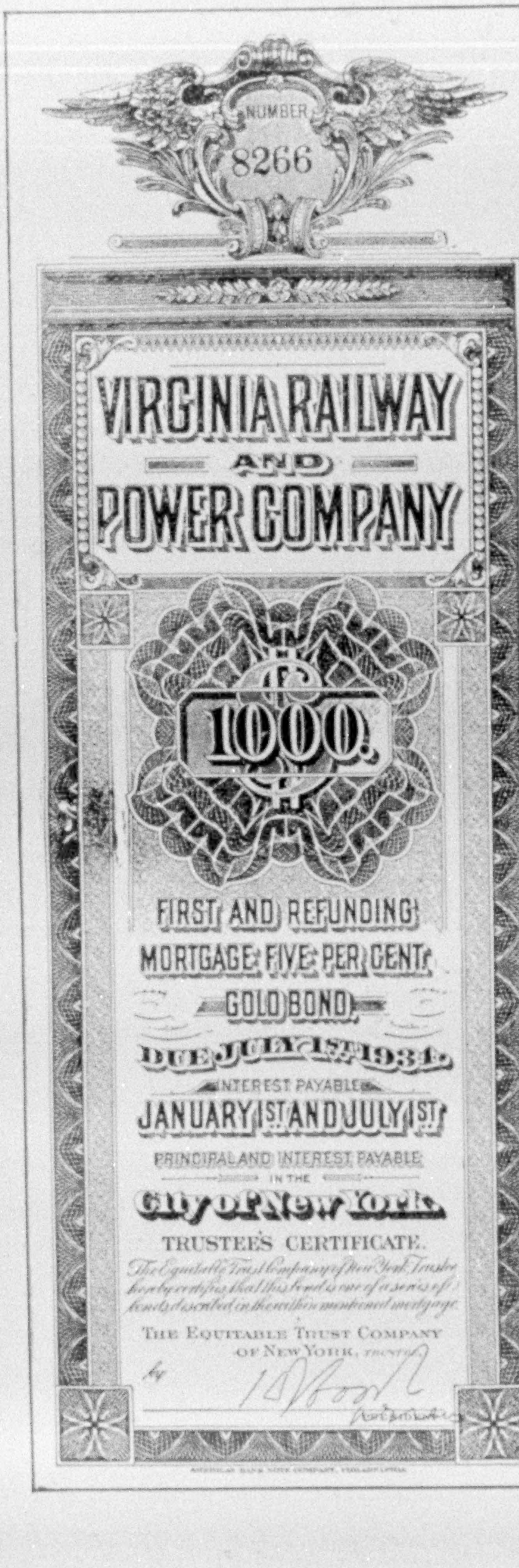

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THE NATIONAL GEOGRAPHIC MAGAZINE

THE WONDERFUL CANALS OF CHINA

By F. H. King

No more important practical contribution to geographic knowledge has been published in many years than "Farmers of Forty Centuries," by the late Prof. F. H. King. It is a study by one of America's foremost agriculturists of the methods by which the Chinese support nearly 500 million people on an area smaller than the improved farm lands of the United States, and on land that they have tilled unimpaired for four thousand years. Dr. King unfortunately died when his book was completed, but the work has been published privately by Mrs. King, at Madison, Wisconsin (450 pages and 250 illustrations, $2.50). The following article has been abstracted from the book and all the photographs are from the same source.

IT IS well nigh impossible by word or map to convey an adequate idea of the magnitude of the systems of canalization, delta, and other lowland reclamation work or of the extent of surface fitting of fields which have been effected in China, Korea, and Japan through the many centuries and which are still in progress. The lands so reclaimed and fitted constitute their most enduring asset and they support their densest populations.

Forty canals across the United States from east to west and 60 from north to south would not equal in number of miles those in these three countries today. Indeed, it is probable that this estimate is not too large for China alone.

In one of our journeys by house-boat on the delta canals between Shanghai and Hangchau, in China, over a distance of 117 miles, we made a careful record of the number and dimensions of lateral canals entering and leaving the main one along which our boat-train was traveling. This record shows that in 62 miles, beginning north of Kia-hsing and extending south to Hangchau, there entered from the west 134 and there left on the coast side 190 canals. The average width of these canals, measured along the water line, we estimated at 22 and 19 feet, respectively, on the two sides. The height of the fields above the water level ranged from 4 to 12 feet during the April and May stage of water.

The depth of water after we entered the Grand Canal often exceeded 6 feet, and our best judgment would place the average depth of all canals in this part of China at more than 8 feet below the level of the fields.

On map No. 1 (page 932), representing the area of 718 square miles in the region traversed, all lines shown are canals, but scarcely more than one-third of those present are shown on the map. Between A, where we began our records before reaching Kia-hsing, and B, near the left margin of the map, there were 43 canals leading in from the up-country side instead of the eight shown, and on the coast side there were 86 leading out into the delta plain toward the coast, whereas but 12 are shown.

Again, on one of our trips by rail from Shanghai to Nanking, we made a similar record of the number of canals seen from the train close along the track, and the notes show an occurrence of 593 canals in a distance of 162 miles, an average of more than three canals per mile

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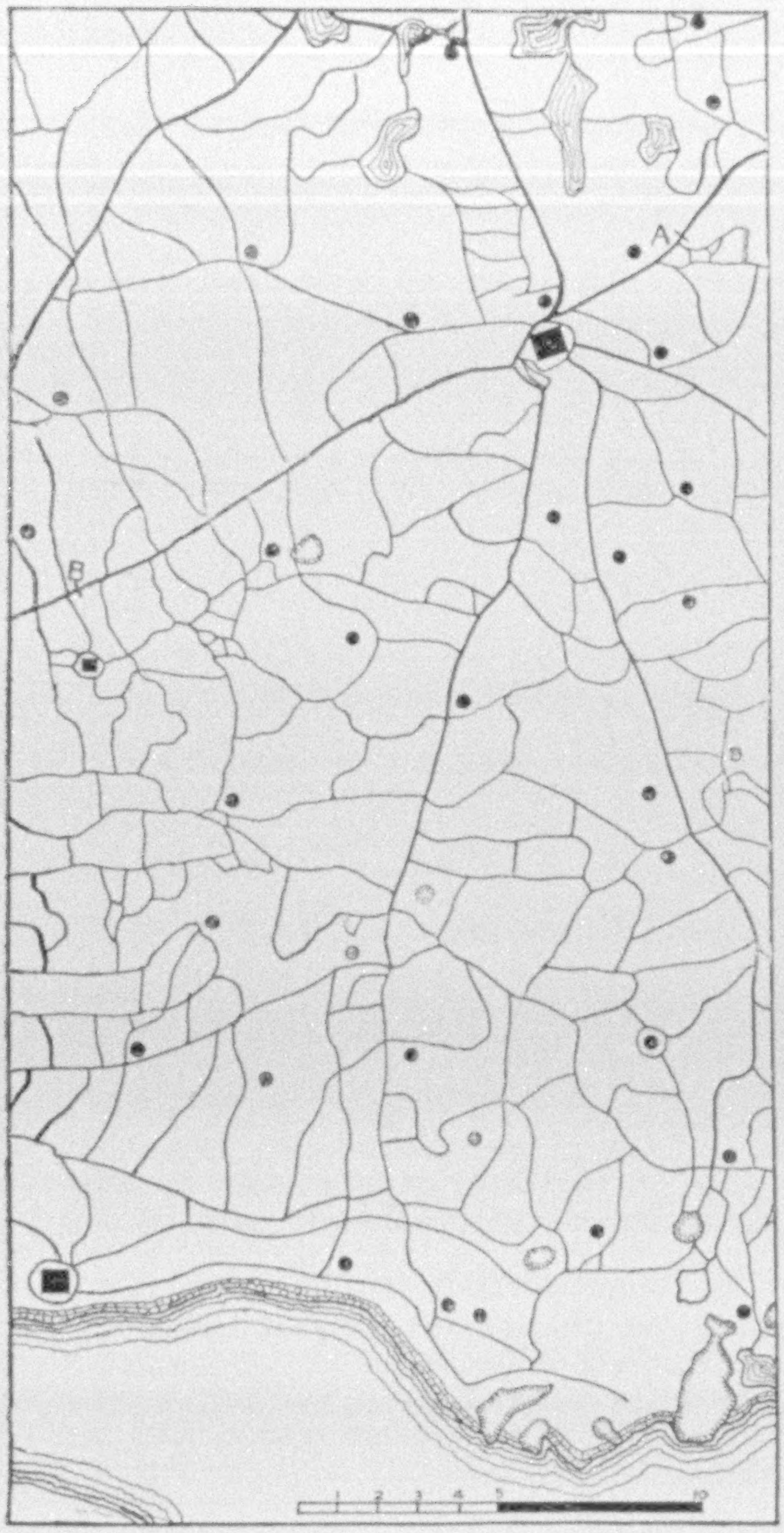
for this region and that between Shanghai and Hangchau.



MAP NO. 1.—MAP OF MAIN CANALS IN 718 SQUARE MILES OF CHEKIANG PROVINCE

Each line represents a canal, but scarcely more than one-third of those present are shown on the map

The extent, nature, and purpose of these vast systems of internal improvement may be better realized through a study of the next two sketch maps. The first (map No. 2, page 933) represents an area 175 by 160 miles, of which map No. 1 is the portion inclosed in the small rectangle. On this area there are shown 2,700 miles of main canals, but from our personal observations it is probable that there exists today in the area not less than 25,000 miles of canals.

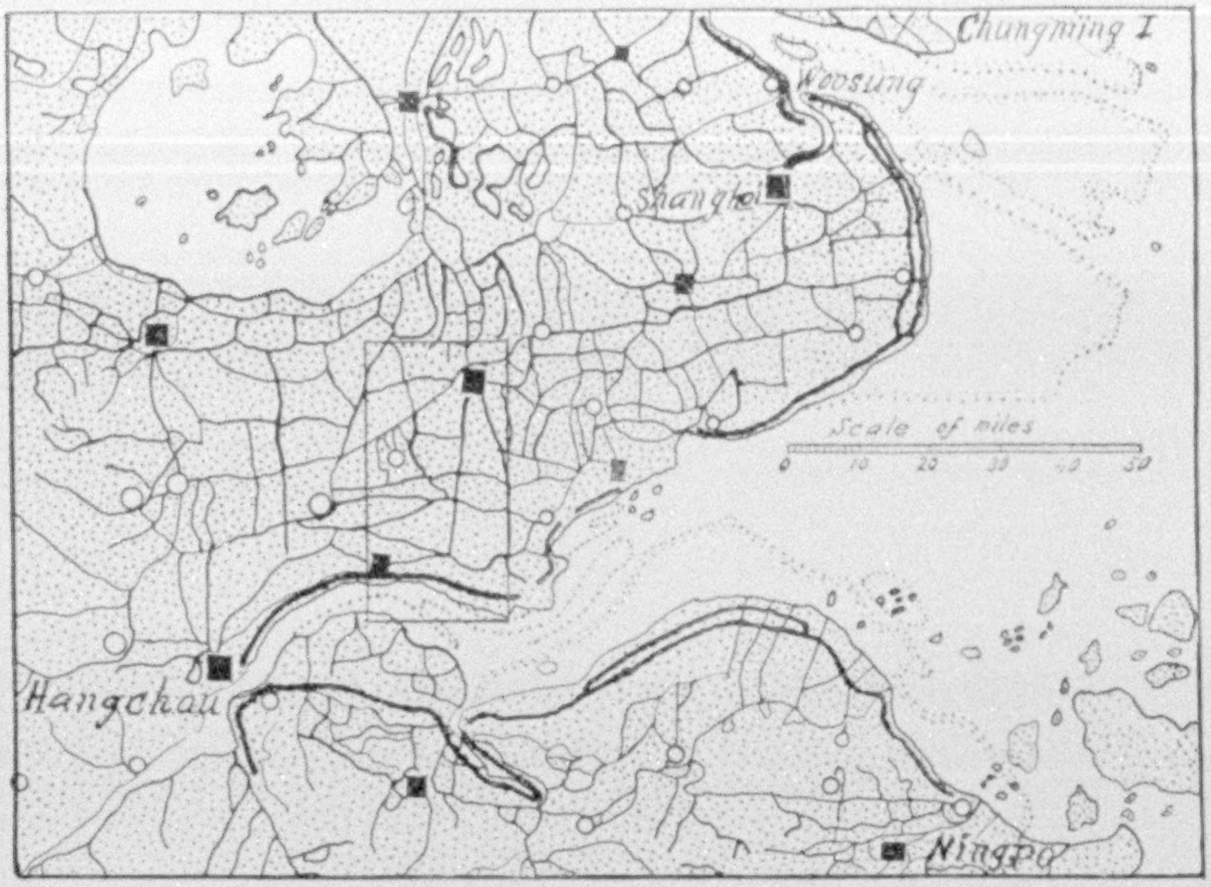
THE FAR-REACHING TIDES

In the next illustration (map No. 3, page 934) an area of northeast China 600 by 725 miles is represented. The unshaded land area covers nearly 200,000 square miles of alluvial plain. This plain is so level that at Ichang, nearly 1,000 miles up the Yangtse, the elevation is only 130 feet above the sea. The tide is felt on the river to beyond Wuhu, 375 miles from the coast. During the summer the depth of water in the Yangtse is sufficient to permit ocean vessels drawing 25 feet of water to ascend 600 miles to Hankau, and for smaller steamers to go on to Ichang, 400 miles further.

The location in this vast low delta and coastal plain of the system of canals already described is indicated by the two rectangles in the southeast corner of the sketch map 3, on page 934). The heavy barred black line, extending from Hangchau in the south to Tientsin in the north, represents the Grand Canal, which has a length of more than 800 miles. The plain east of this canal, as far north as the mouth of the Hwang-ho in 1852, is canalized much as in the area shown in map No. 2. So, too, is a large area both sides of the present mouth of the same river in Shantung and Chi-li between the canal and the coast.

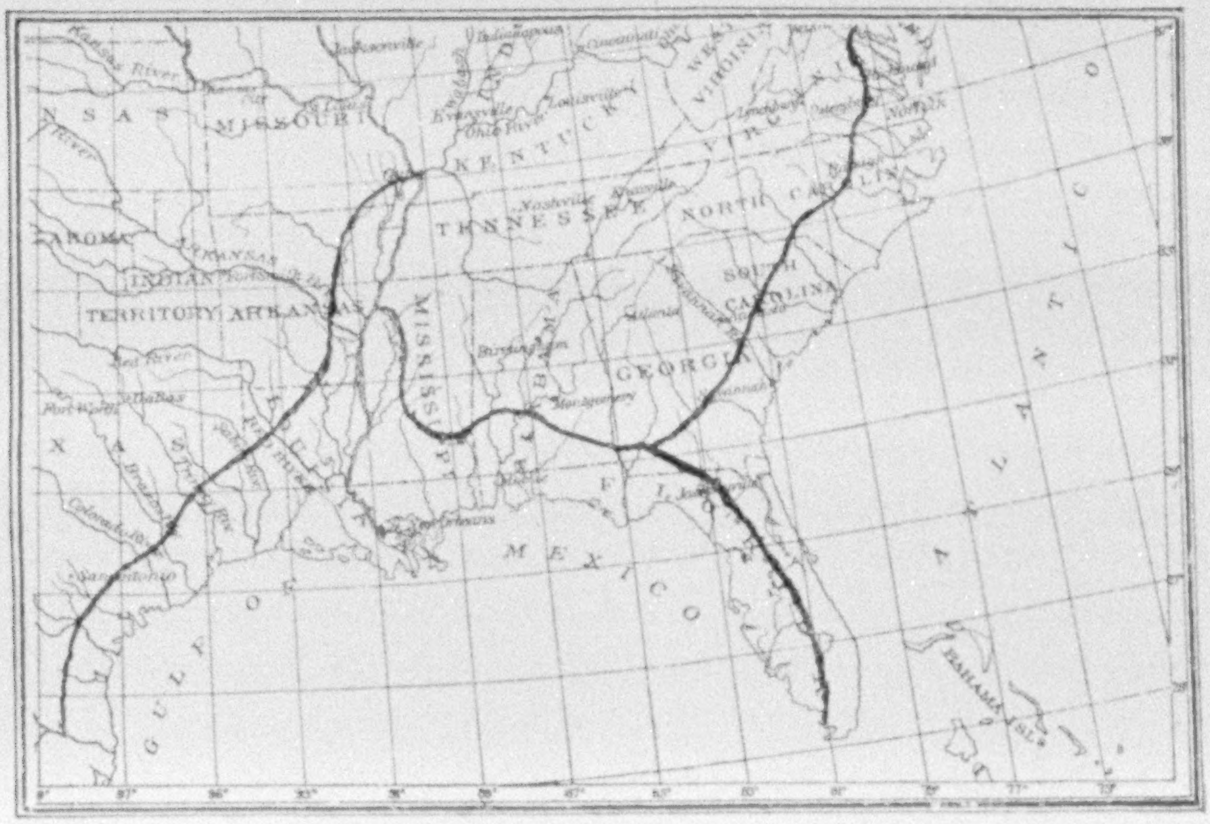
Westward, up the Yangtse Valley, the provinces of Ngan-hwei, Kiangsi, Hunan, and Hupeh have very extensive canalized tracts, probably exceeding 28,000 square miles in area. Still further west, in Szechuan province, is the Chengtu plain, 30 by 70 miles, with what has been called "the most remarkable irrigation system in China."

A conservative estimate would place


Chungming I
Woosung
Shanghai
Scale of miles
0 10 20 30 40 50
Hangchau
Ningpo

MAP NO. 2.—SKETCH MAP OF PORTIONS OF CHEKIANG AND KIANGSU PROVINCES

Representing some 2,700 miles of main canals and over 300 miles of sea-wall. The sea-walls are represented by the very heavy black lines. The area shown in this map contains not less than 25,000 miles of canals. The small rectangle shows the area covered by Map No. 1.


MISSOURI
KENTUCKY
VIRGINIA
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
INDIAN TERRITORY
ARKANSAS
MISSISSIPPI
FL
GULF OF MEXICO
ATLANTIC
BAHAMA ISL.

To build a canal in the United States to correspond with the Grand Canal of China it would be necessary to traverse the country as indicated by the black line on this map

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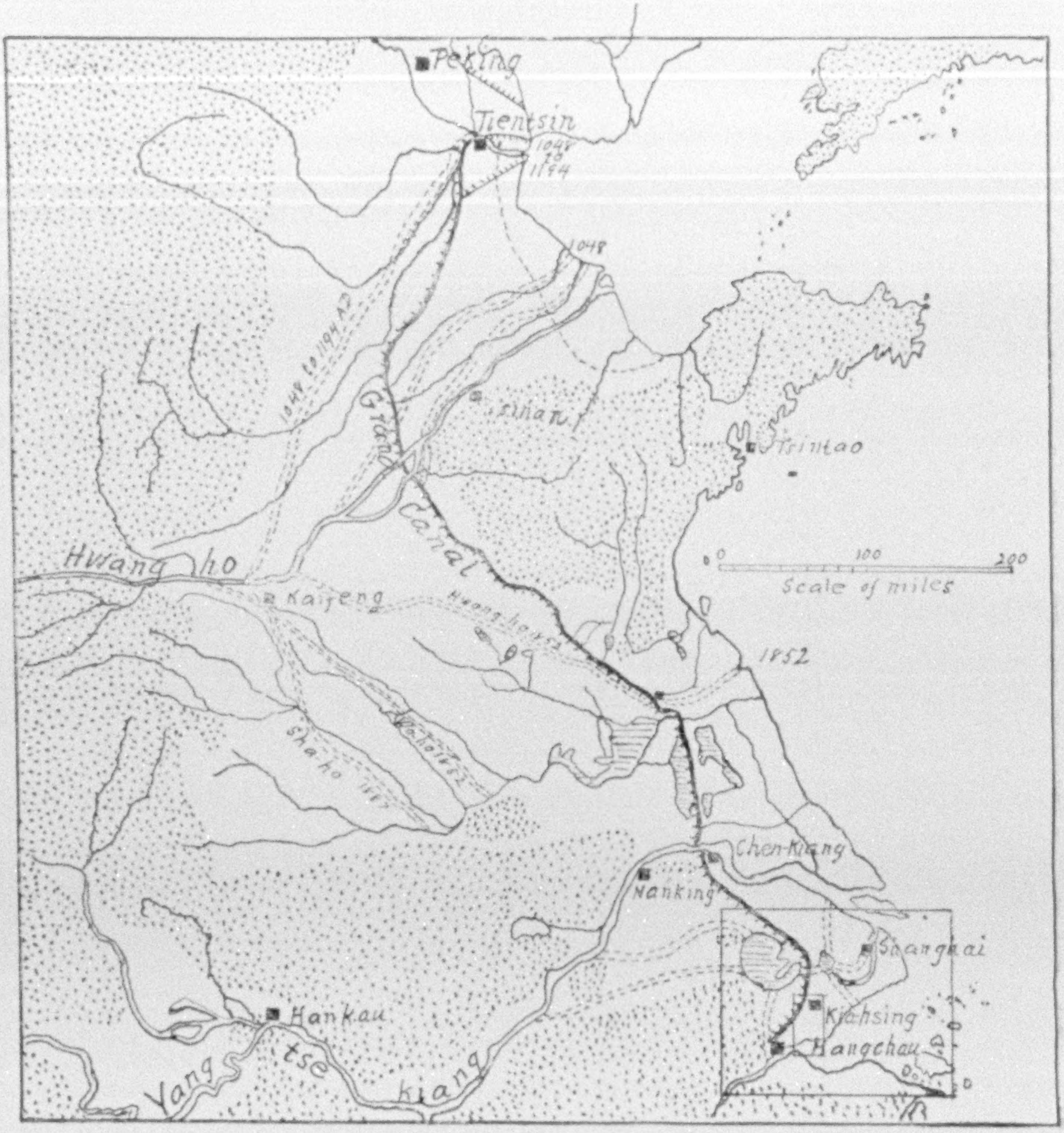

Peking
Tientsin
1048 to 1194
1048
1048 to 1194 A.D.
Grand Canal
Tsinan
Tsintao
0
100
200
Scale of miles
Hwang ho
Kaifeng
Hwang-ho
1852
Sha-ho 1887
Chen-Kiang
Nanking
Shanghai
Kiahsing
Hangchau
Hankau
Yang tse kiang

MAP NO. 3.—SKETCH MAP OF NORTHEAST CHINA

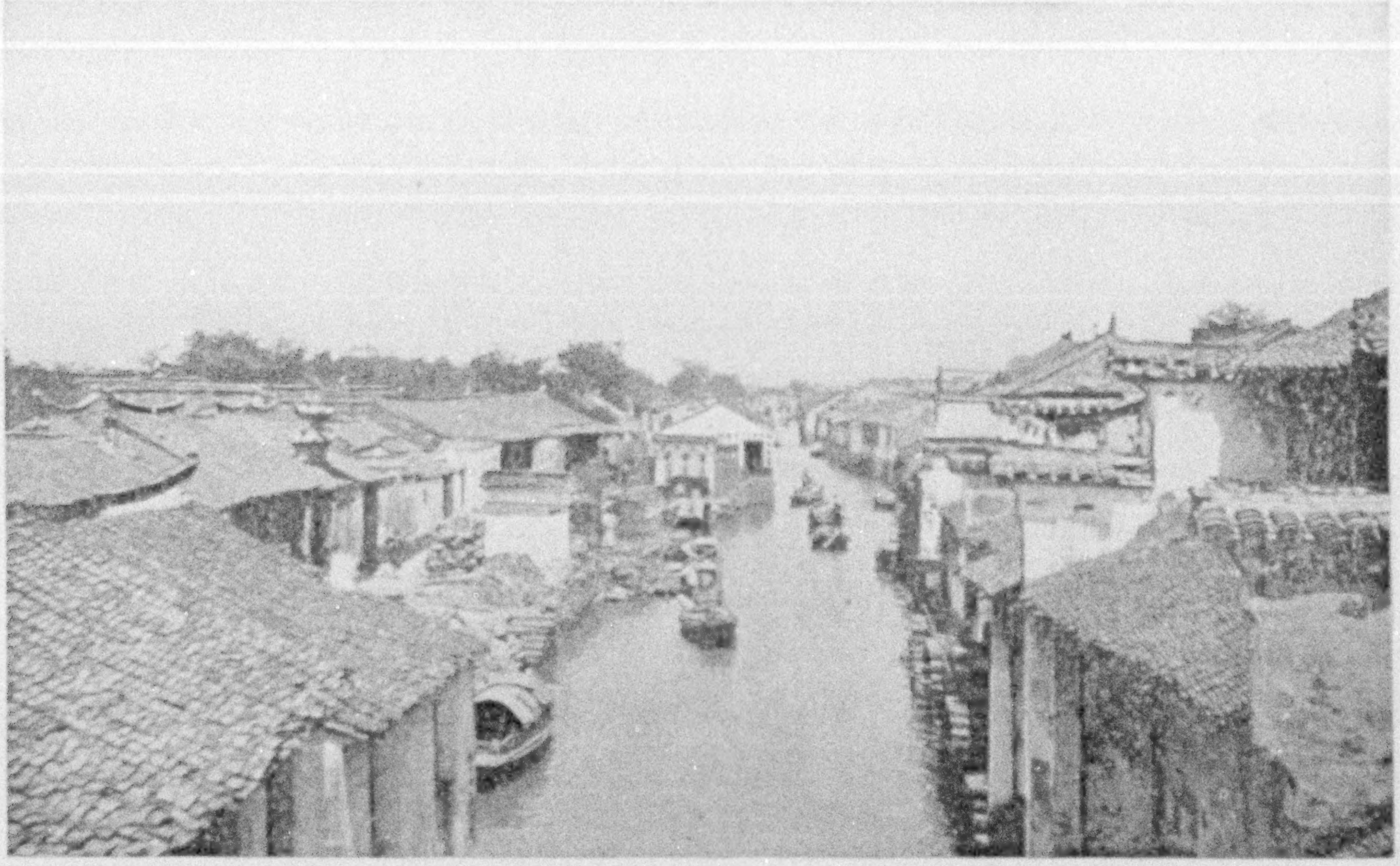
Showing the alluvial plain and the Grand Canal, extending 800 miles through it from Hangchau to Tientsin. The unshaded land area lies mostly less than 100 feet above sea-level

the miles of canals and leveed rivers in China, Korea, and Japan equal to eight times the number represented on map No. 2—fully 200,000 miles in all.

THE GREAT LEVEES

As adjuncts to these vast canalization works there have been enormous amounts of embankment, dike, and levee construction. More than 300 miles of sea wall alone exist in the area covered by the sketch map (page 933). The east bank of the Grand Canal above Yangchau is itself a great levee, holding back the waters to the west above the eastern plain, diverting them south into the Yangtse-kiang; but it is also provided with spillways for use in times of excessive flood, permitting waters to discharge eastward. Such excess waters, however, are controlled by another dike, with canal along its west side, some 40 miles to the east, impounding the water in a series of large lakes until it may gradually drain away. This area is seen in map No. 3, above, north of the Yangtse River.

Along the banks of the Yangtse, and for many miles along the Hwang-ho, great levees have been built, sometimes in reinforcing series of two or three at different distances back from the chan-



CHINESE COUNTRY VILLAGE LINING BOTH SIDES OF A CANAL

Section one-third of a mile long between two bridges, where in three rows of houses live 240 families

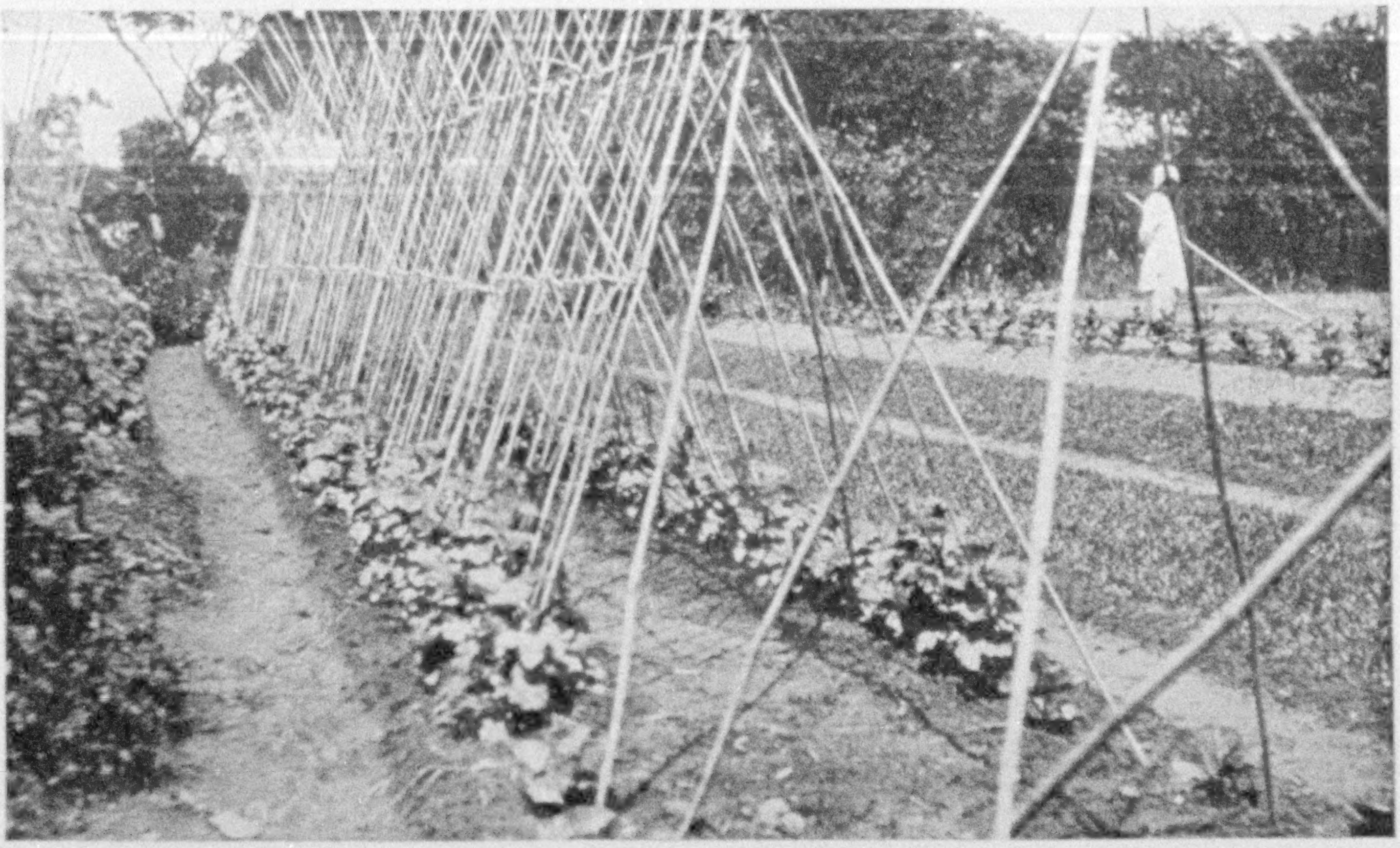
nel, where the stream bed is above the adjacent country, in order to prevent widespread disaster and to limit the inundated areas in times of unusual flood. In the province of Hupeh, where the Han River flows through 200 miles of low country, this stream is diked on both sides throughout the whole distance, and in a portion of its course the height of the levees reaches 30 feet or more.

Again, in the Canton Delta region, there are other hundreds of miles of sea wall and dikes, so that the aggregate mileage of this type of construction works in the Empire can only be measured in thousands of miles.

In addition to the canal and levee construction works, there are numerous impounding reservoirs which are brought into requisition to control overflow waters from the great streams. Some of the interior reservoirs have areas of 2,000 and 1,800 square miles, and during the heaviest rainy seasons each may rise through 20 to 30 feet. Then there are other large and small lakes in the coastal plain, giving an aggregate reservoir area exceeding 13,000 square miles, all of which are brought into service in controlling flood waters, all of which are steadily filling with the sediments brought from the far-away, uncultivable mountain slopes and which are ultimately destined to become rich alluvial plains, doubtless to be canalized in the manner we have seen.

NEW LAND IN THE MAKING

There is still another phase of these vast construction works which has been of the greatest moment in increasing the maintenance capacity of the Empire—the wresting from the flood waters of the enormous volumes of silt which they carry, depositing it over the flooded areas, in the canals, and along the shores in such manner as to add to the habitable and cultivable land. Reference may be made to the rapid growth of Chungming Island, in the mouth of the Yangtse-kiang, and the million people now finding homes on the 270 square miles of newly made land which now has its canals, as may be seen in the upper margin of map No. 2.



INCREASING THE AVAILABLE SURFACE OF THE FIELD SO THAT DOUBLE THE NUMBER OF PLANTS MAY OCCUPY THE GROUND

The row of cucumbers on opposite sides of each trellis will cover its surface. This man's garden had an area of but 63 by 68 feet and two square rods of this were held sacred to the family grave mound, and yet his statement of yields, number of crops, and prices made his earning $100 a year on less than one-tenth of an acre.

The city of Shanghai, as its name signifies, stood originally on the seashore, which has now grown 20 miles to the northward and to the eastward. In 220 B. C. the town of Putai, in Shantung (see map of China, supplement), stood one-third of a mile from the sea, but in 1730 it was 47 miles inland, and is 48 miles from the shore today.

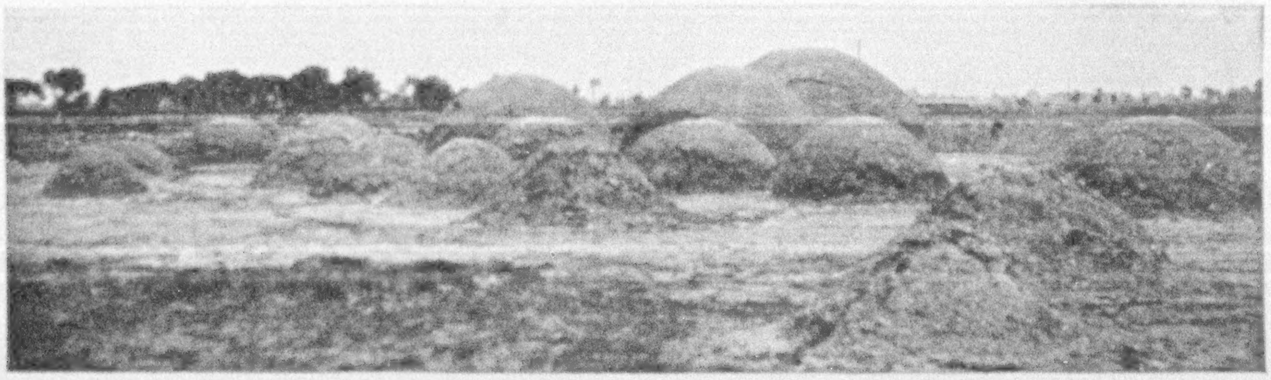
The dotted line laid in from the coast of the Gulf of Chihli on map No. 3 marks one historic shore line and indicates a general growth of land 18 miles to seaward.

Besides these actual extensions of the shorelines, the centuries of flooding of lakes and low-lying lands has so filled many depressions as to convert large areas of swamp into cultivated fields. Not only this, but the spreading of canal mud broadcast over the encircled fields has had two very important effects, namely, raising the level of the low-lying fields, giving them better drainage and so better physical condition, and adding new plant food in the form of virgin soil of the richest type, thus contributing to the maintenance of soil fertility, high maintenance capacity, and permanent agriculture through all the centuries.

AN ENGINEER-EMPEROR

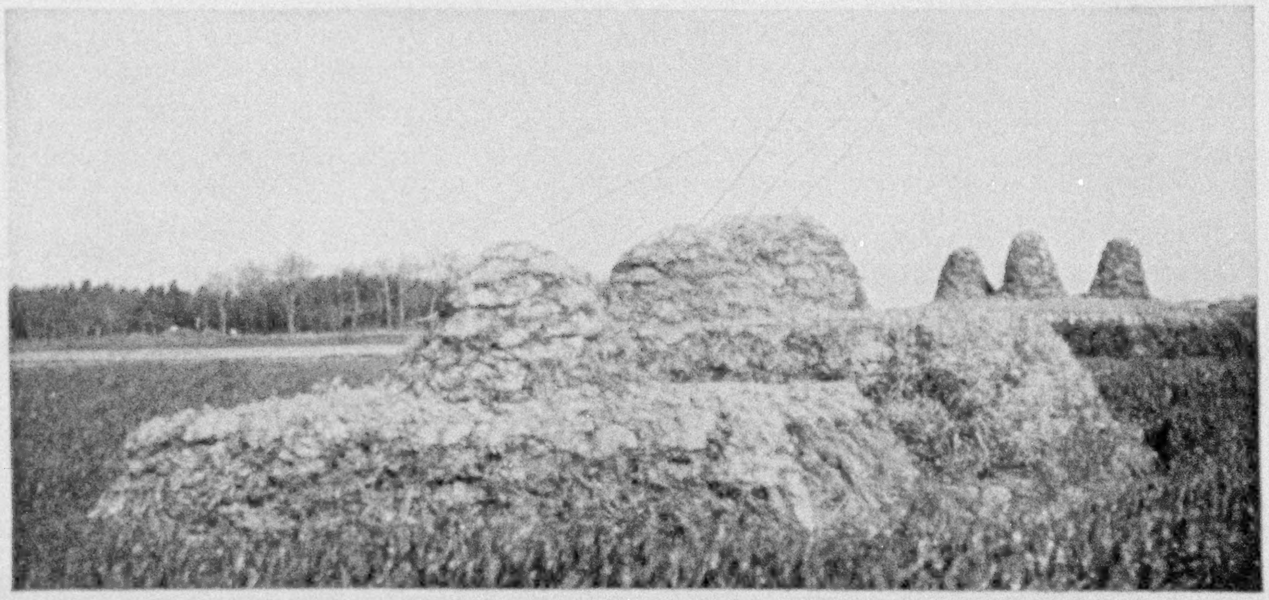
These operations of maintenance and improvement had a very early inception; they appear to have persisted throughout the recorded history of the Empire and are in vogue today. Canals of the type illustrated on maps Nos. 1 and 2 have been built between 1886 and 1901, both on the extensions of Chungming Island and the newly formed mainland to the north, as is shown by comparison of Stieler's atlas, revised in 1886, with the recent German survey.

Earlier than 2255 B. C., more than 4,100 years ago, Emperor Yao appointed "The Great" Yu "superintendent of works," and intrusted him with the work of draining off the waters of disastrous floods and canalizing the rivers, and he devoted 13 years to this work. This great engineer is said to have written

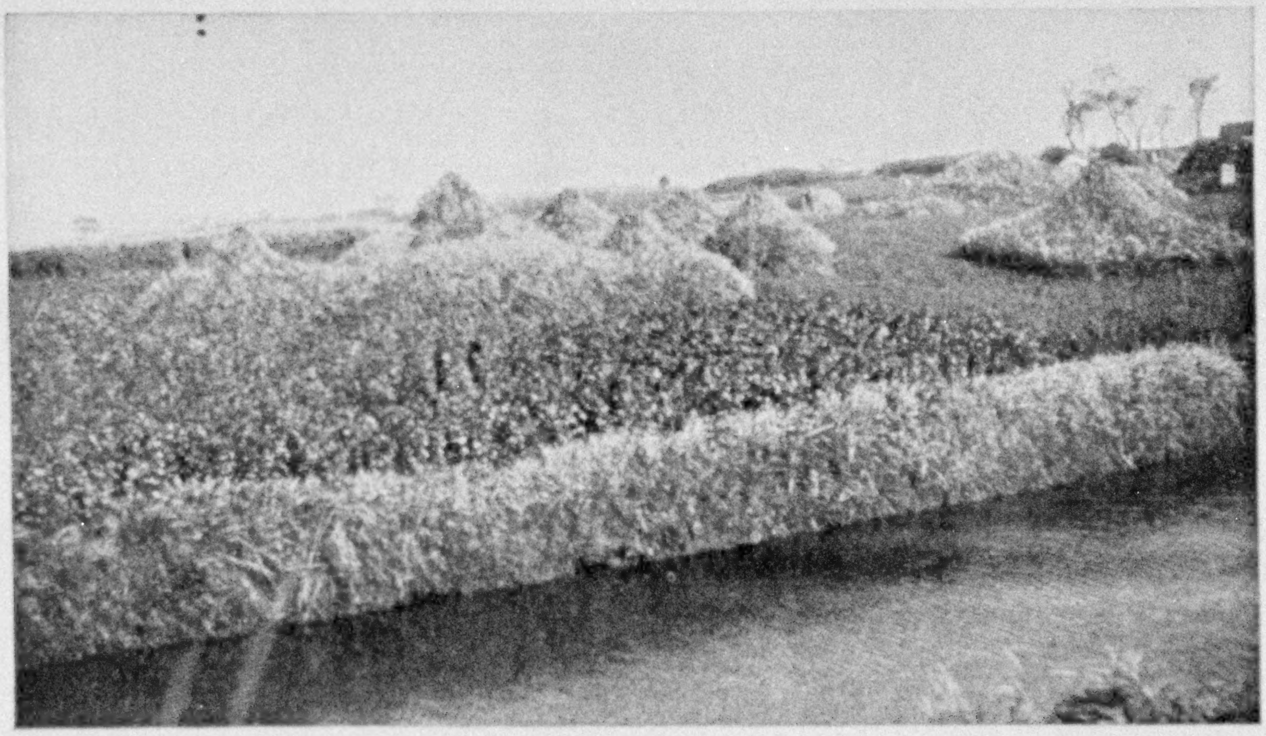


FAMILY GROUP OF GRAVE MOUNDS IN CHIHLI, BETWEEN TAKU AND TIENTSIN

The largest or father grave is in the rear, those of his two sons standing next



GRAVE MOUNDS RECENTLY RESTORED AND BEARING THE STREAMER STANDARDS IN TOKEN OF MEMORIAL SERVICES



GROUP OF GRASS-GROWN GRAVE MOUNDS CARRYING THE STREAMER STANDARDS AND SHOWING THE EXTENSIVE OCCUPATION OF LAND

It is the custom in some parts of China, if not in all, to periodically restore the mounds, maintaining their height and size, and to decorate these once in the year with flying streamers of colored paper, set there as tokens that the paper money has been burned upon them and its essence sent up in the smoke for the maintenance of the spirits of their departed friends. We have our memorial day; they have for centuries observed theirs with religious fidelity. The usual expense of a burial among the working people is said to be $100, Mexican, an enormous burden when the day's wage or the yearly earning of the family is considered.

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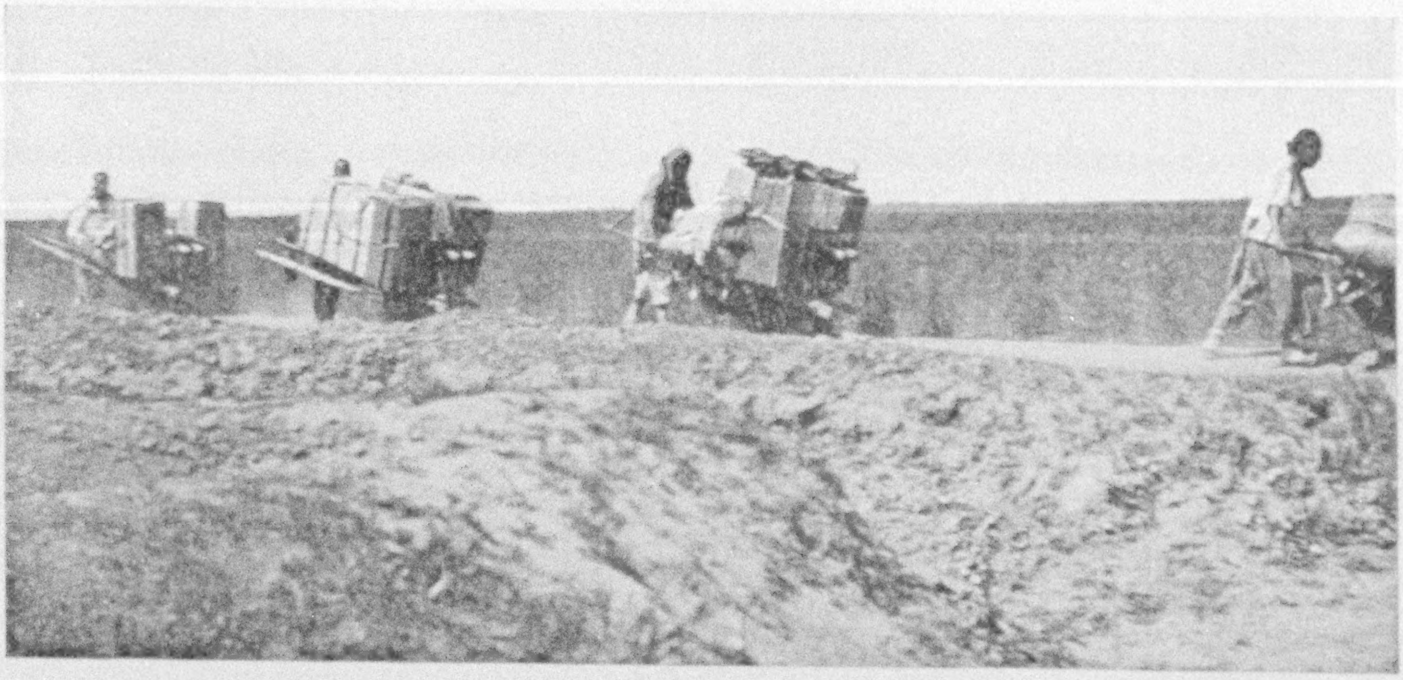
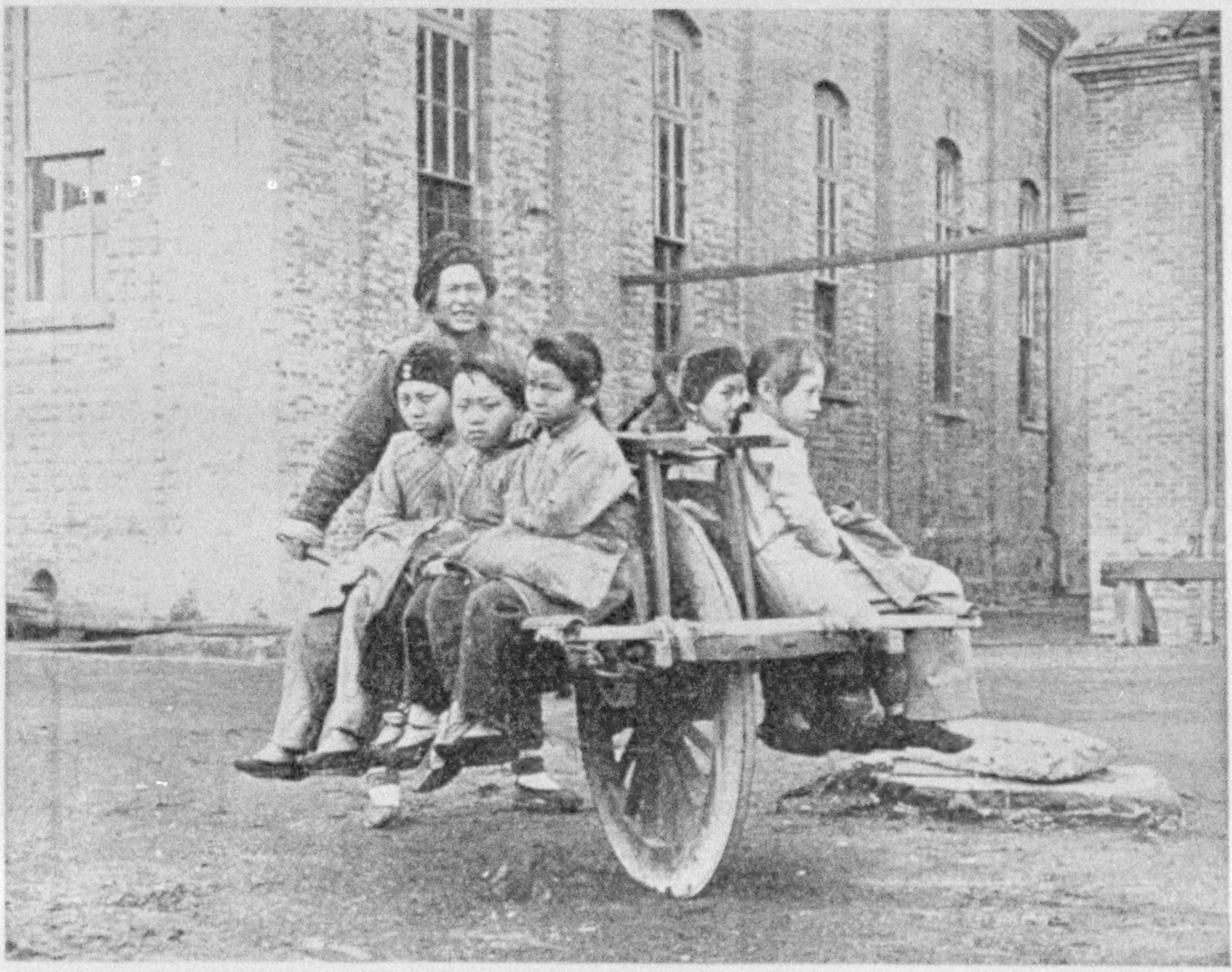


MEN FREIGHTERS GOING INLAND WITH LOADS OF MATCHES

For adaptability to the worst road conditions no vehicle equals the wheelbarrow, progressing by one wheel and two feet. No vehicle is used more in China, if the carrying pole is excepted, and no wheelbarrow in the world permits so high an efficiency of human power as the Chinese, where nearly the whole load is balanced on the axle of a high, massive wheel, with broad tire. A shoulder band from the handles of the barrow relieves the strain on the hands, and, when the load or the road is heavy, men or animals may aid in drawing, or even, when the wind is favorable, it is not unusual to hoist a sail to gain propelling power.



A COMMON MEANS OF TRANSPORT ON THE STREETS OF SHANGHAI, USED MUCH MORE FREQUENTLY BY WOMEN THAN BY MEN

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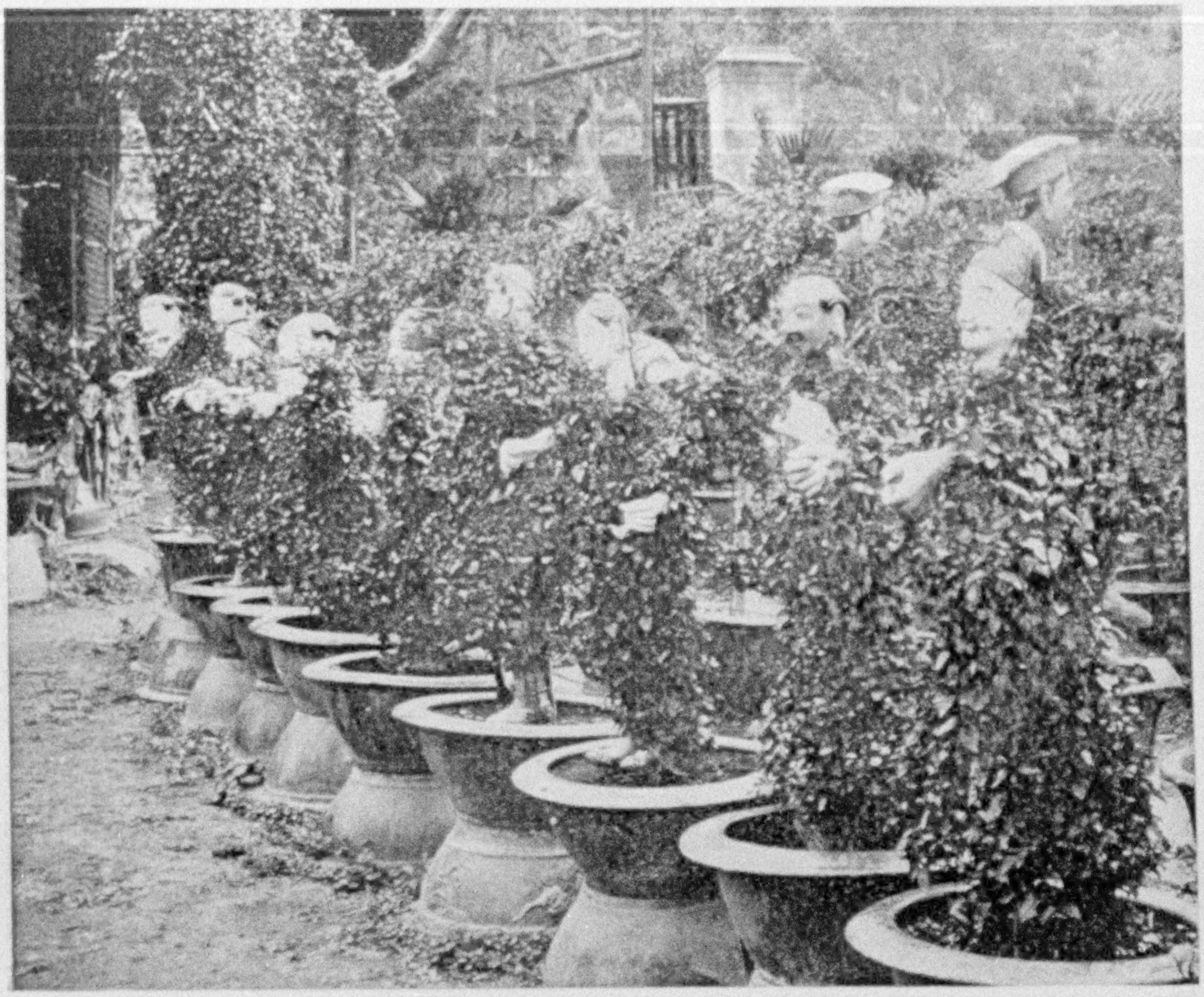

FLORAL PIECES IN FLORIST'S GARDEN, HAPPY VALLEY, HONGKONG, CHINA

Trained in the form of life-size human figures, with limbs, arms, and trunk, provided with highly glazed and colored porcelain feet, hands, and head. These, with many other potted plants and trees, including dwarf varieties, are grown under outdoor lattice shelters in different parts of China, for sale to the wealthy Chinese families.

several treatises on agriculture and drainage, and was finally called, much against his wishes, to serve as Emperor during the last seven years of his life.

The history of the Hwang-ho is one of disastrous floods and shifting of its course, which have occurred many times in the years since before the time of the Great Yu, who perhaps began the works perpetuated today.

Between 1300 A. D. and 1852 the Hwang-ho emptied into the Yellow Sea south of the highlands of Shantung, but in that year, when in unusual flood, it broke through the north levees and finally took its present course, emptying again into the Gulf of Chi-li, some 300 miles further north. Some of these shiftings of course of the Hwang-ho and of the Yangtse-kiang are indicated in dotted lines on the sketch map No. 3, where it may be seen that the Hwang-ho during 146 years poured its waters into the sea as far north as Tientsin, through the mouth of the Pei-ho, 400 miles to the northward of its mouth in 1852.

This mighty river is said to carry at low stage past the city of Tsinan, in Shantung, no less than 4,000 cubic yards of water per second and three times this volume when running at flood. This is water sufficient to inundate 33 square miles of level country 10 feet deep in 24 hours.

CANAL BUILDERS FOR CENTURIES

What must be said of the mental status of a people who for 40 centuries have

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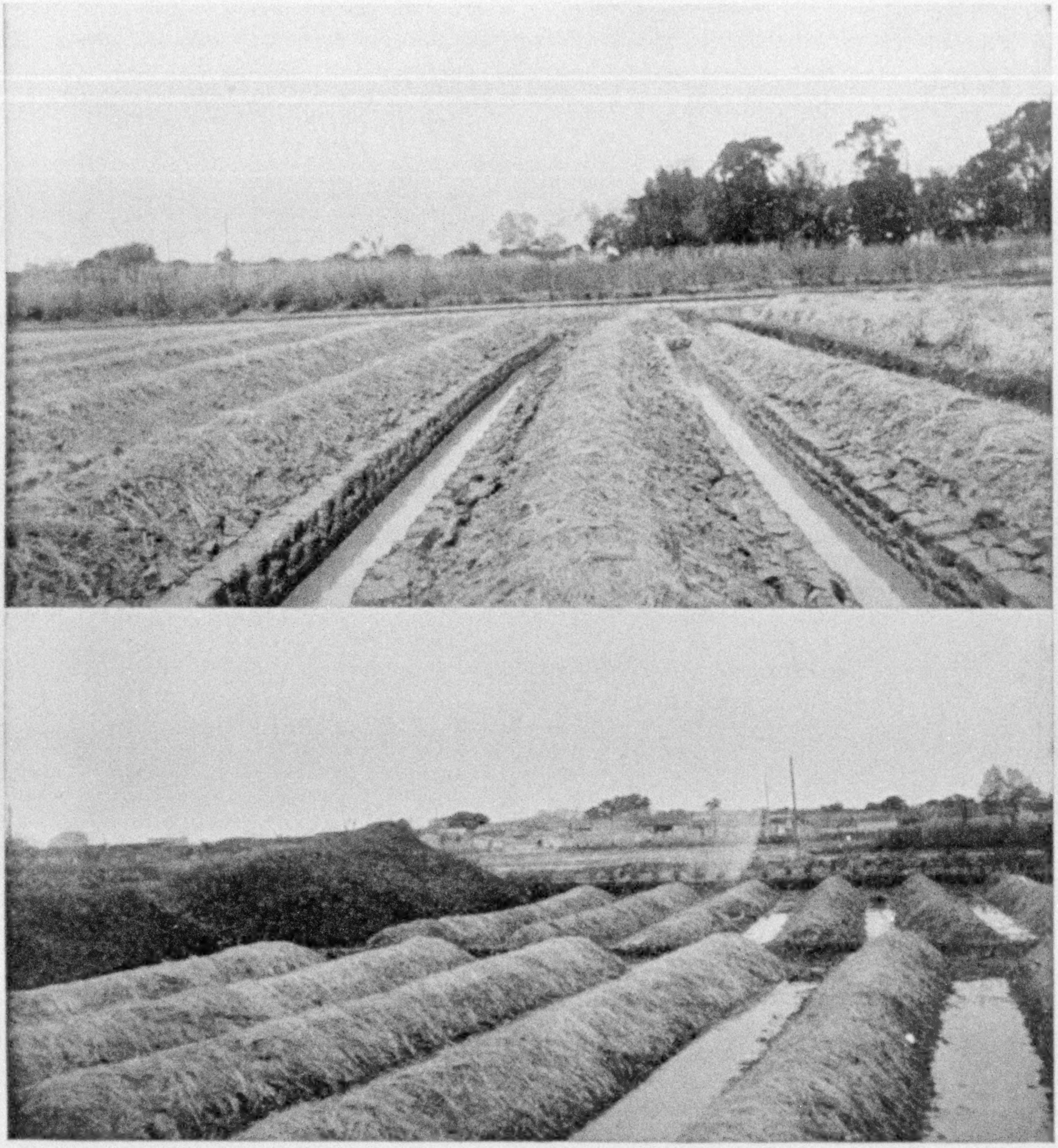

FIELDS OF GINGER JUST PLANTED; RIDGED AND FURROWED FOR DRAINAGE

Showing the amount of hand labor performed to secure the winter crop, following two of rice

measured their strength against such a Titan racing past their homes above the level of their fields, confined only between walls of their own construction? While they have not always succeeded in controlling the river, they have never failed to try again. In 1877 this river broke its banks, inundating a vast area, bringing death to a million people. Again, as late as 1898, 1,500 villages to the northeast of Tsinan and a much larger area to the southwest of the same city were devastated by it, and it is such events as these which have won for the river the names "China's Sorrow," "The Ungovernable," and "The Scourge of the Sons of Han."

The building of the Grand Canal appears to have been a comparatively recent event in Chinese history. The middle section is said to have been constructed about the sixth century B. C.;

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A SEWING CIRCLE IN THE OPEN AIR AND SUNSHINE, SHANGHAI

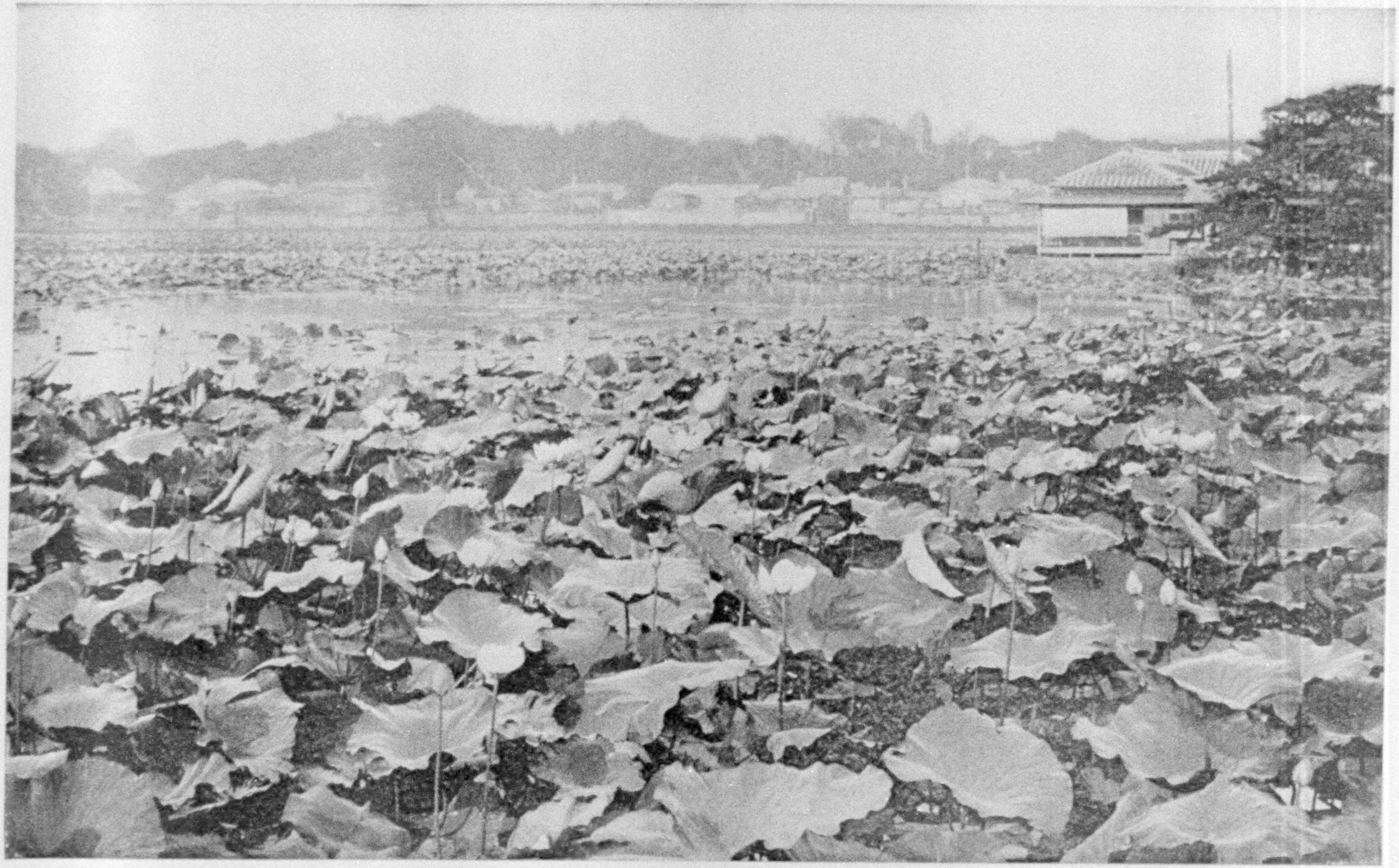
the southern section, between Chenkiang and Hangchau, during the years 605 to 617 A. D.; but the northern section, from the channel of the Hwang-ho, deserted in 1852, to Tientsin was not built until the years 1280-1283.

While this canal has been called by the Chinese Yu-ho (Imperial River), Yunho (Transport River), or Yunliang-ho (Tribute-bearing River), and while it has connected the great rivers coming down from the far interior into a great water-transport system, this feature of construction may have been but a byproduct of the great dominating purpose which led to the vast internal improvements in the form of canals, dikes, levees, and impounding reservoirs so widely scattered, so fully developed, and so effectively utilized. Rather the master purpose must have been maintenance for the increasing flood of humanity.

And I am willing to grant to the Great Yu, with his finger on the pulse of the nation, the power to project his vision for 4,000 years into the future of his race and to formulate some of the measures which might be inaugurated to grow with the years and make certain perpetual maintenance for those to follow.

THE KEYNOTE OF PERMANENT AGRICULTURE

The exhaustion of cultivated fields must always have been the most fundamental, vital, and difficult problem of all civilized people, and it appears clear that such canalization as is illustrated on maps Nos. 1 and 2 may have been pri-



LOTUS POND WITH PLANT IN BLOOM; CULTIVATED FOR THEIR FLESHY ROOTS, USED FOR FOOD marily initial steps in the reclamation of delta and overflow lands. At any rate, whether deliberately so planned or not, the canalization of the delta and overflow plains of China has been one of the most fundamental and fruitful measures for the conservation of her natural resources that they could have taken, for we are convinced that this oldest nation in the world has thus greatly augmented the extension of its coastal plains, conserving and building out of the waste of erosion wrested from the great streams hundreds of square miles of the richest and most enduring of soils.

We have little doubt that were a full and accurate account given of human influence upon the changes in this remarkable region during the last 4,000 years, it would show that these gigantic systems of canalization have been matters of slow, gradual growth, often initiated and always profoundly influenced by the labors of the strong, patient, persevering, thoughtful, but ever-silent husbandmen in their efforts to acquire homes and to maintain the productive power of the fields.

Nothing appears more clear than that the greatest material problem which can engage the best thought of China today is that of perfecting, extending, and perpetuating the means for controlling her flood waters, for better drainage of her vast areas of low land, and for utilizing the tremendous loads of silt borne by her streams more effectively in fertilizing existing fields and in building and reclaiming new land. With her millions of people needing homes and anxious for work, who have done so much in land building, in reclamation, and in the maintenance of soil fertility, the government should give serious thought to the possibility of putting large numbers of them at work, effectively directed by the best engineering skill.

It must now be entirely practicable, with engineering skill and mechanical appliances, to put the Hwang-ho, and other rivers of China subject to overflow, completely under control. With the Hwang-ho confined to its channel, the adjacent lowlands can be better drained by canalization and freed from the accumulating saline deposits which are rendering them sterile. Warping may be resorted to during the flood season to raise the level of adjacent low-lying fields, rendering them at the same time more fertile. Where the river is running above the adjacent plains there is no difficulty in drawing off the turbid water by gravity, under controlled conditions, into diked basins, and even in compelling the river to buttress its own levees.

There is certainly great need and great opportunity for China to make still better and more efficient her already wonderful transportation canals and those devoted to drainage, irrigation, and fertilization.

ANCIENT AND MODERN CANALIZATION

In the United States, along the same lines, now that we are considering the development of inland waterways, the subject should be surveyed broadly, and much careful study may well be given to the works these old people have developed and found serviceable through so many centuries.

The Mississippi is annually bearing to the sea nearly 225,000 acre-feet of the most fertile sediment and between levees along a raised bed through 200 miles of country subject to inundation. The time is here when there should be undertaken a systematic diversion of a large part of this fertile soil over the swamp areas, building them into well-drained, cultivable, fertile fields, provided with waterways to serve for drainage, irrigation, fertilization, and transportation.

These great areas of swamp land may thus be converted into the most productive rice and sugar plantations to be found anywhere in the world, and the area made capable of maintaining many millions of people as long as the Mississippi endures, bearing its burden of fertile sediment.

There ought, and it would seem there must some time be provided a way for sending to the sandy plains of Florida, and to the sandy lands between there and the Mississippi, large volumes of the rich silt and organic matter from this and other rivers, aside from that which should be applied systematically to building

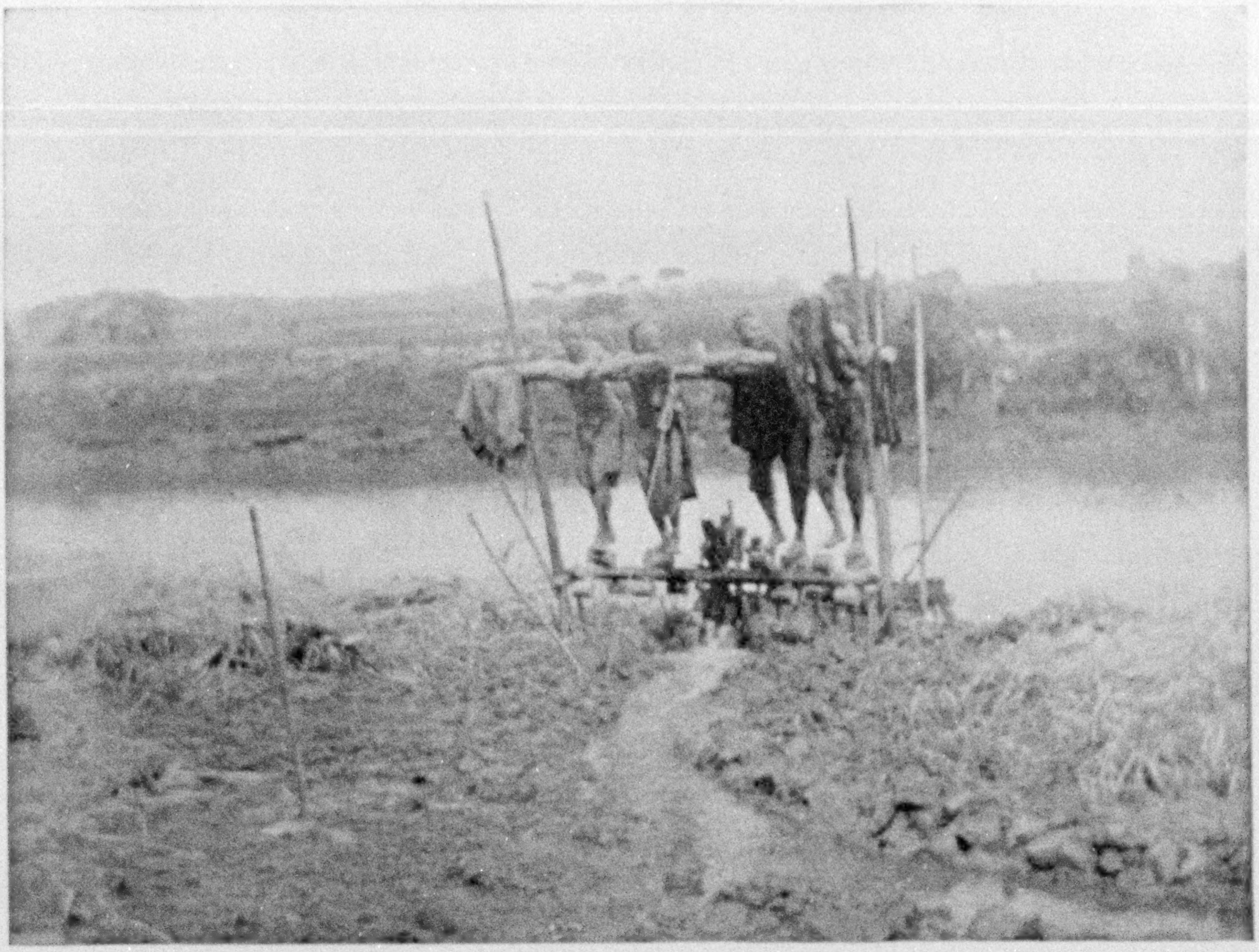


Photo by G. W. Groff

A TREADMILL PUMP, VERY COMMON IN CHINA (SEE PAGE 945)

above flood plain the lands of the delta which are subject to overflow or are too low to permit adequate drainage.

But the conservation and utilization of the wastes of the soil erosion, as applied in the delta plain of China, stupendous as this work has been, is nevertheless small when measured by the savings which accrue from the careful and extensive fitting of fields so largely practiced, which both lessens soil erosion and permits a large amount of soluble and suspended matter in the run-off to be applied to and retained upon the fields through their extensive system of irrigation.

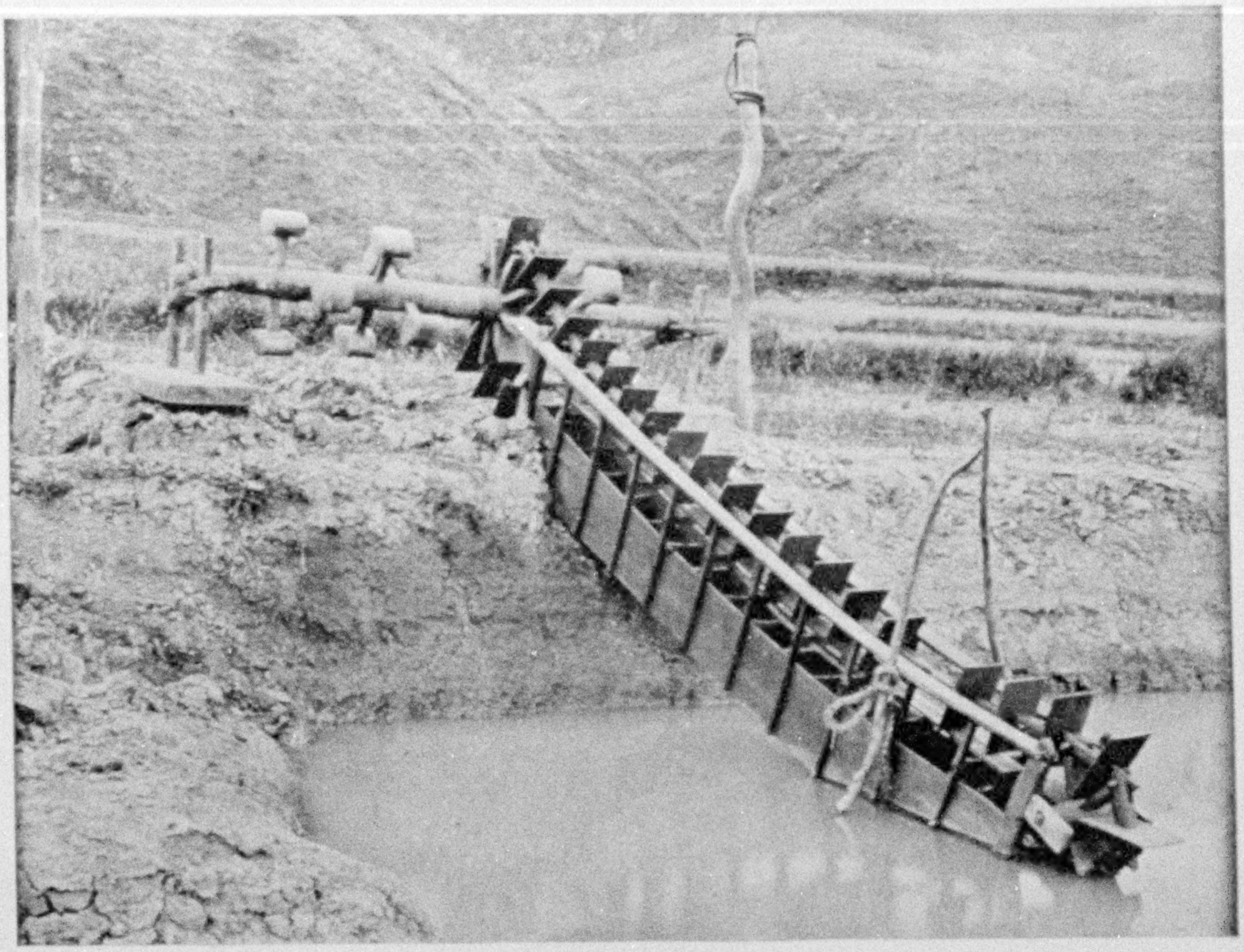
Mountainous and hilly as are the lands of Japan, 11,000 square miles of her cultivated fields in the main islands of Honshu, Kyushu, and Shikoku have been carefully graded to water-level areas, bounded by narrow raised rims, upon which 16 or more inches of run-off water, with its suspended and soluble matter, may be applied, a large part of which is retained on the fields or utilized by the crop, while surface erosion is almost completely prevented.

The total area thus surface-fitted in China must be 90,000 or 100,000 square miles. Such enormous field erosion as is tolerated at the present time in our Southern and South Atlantic States is permitted nowhere in the Far East, so far as we observed, not even where the topography is much steeper.

CONSERVATION, AN ENDURING ASSET

One of the most remarkable agricultural practices adopted by any civilized people is the centuries-long and well nigh universal conservation and utilization of all human waste in China, Korea, and Japan, turning it to marvelous account in the maintenance of soil fertility and in the production of food.

To understand this evolution, it must be recognized that mineral fertilizers so extensively employed in modern western agriculture, like the extensive use of min-



THREE-MAN CHINESE FOOT-POWER AND WOODEN CHAIN PUMP, EXTENSIVELY USED FOR IRRIGATION IN VARIOUS PARTS OF CHINA

The mechanical appliances in use on the canals and in the shops of Canton demonstrate that the Chinese possess constructive ability of a high order, notwithstanding so many of these are of the simplest forms. This picture shows a simple yet efficient pump (on page 944). A father and his two sons are driving an irrigation pump, lifting water at the rate of seven and a half acre-inches per ten hours, and at a cost, including wage and food, of 36 to 45 cents, gold. Here, too, were large stern-wheel passenger boats, capable of carrying thirty to one hundred people, propelled by the same foot-power, but laid crosswise of the stern, the men working in long single or double lines, depending on the size of the boat. On these the fare was one cent, gold, for a fifteen mile journey, a rate one-thirtieth our two-cent railway tariff. The dredging and clearing of the canals and water channels in and about Canton is likewise accomplished with the same foot-power, often by families living on the dredge boats.

eral coal, had been a physical impossibility to all people alike until within very recent years. With this fact must be associated the very long unbroken life of these nations and the vast numbers their farmers have been compelled to feed.

When we reflect upon the depleted fertility of our own older farm lands, comparatively few of which have seen a century's service, and upon the enormous quantity of mineral fertilizers which are being applied annually to them in order to secure paying yields, it becomes evident that the time is here when profound consideration should be given to the practices the Mongolian race has maintained through many centuries, which permit it to be said of China that one-sixth of an acre of good land is ample for the maintenance of one person, and which are feeding an average of three people per acre of farm land in the three southernmost of the four main islands of Japan.

Dr. Kawaguchi, of the National Department of Agriculture and Commerce, taking his data from their records, informed us that the human manure saved and applied to the fields of Japan in 1908

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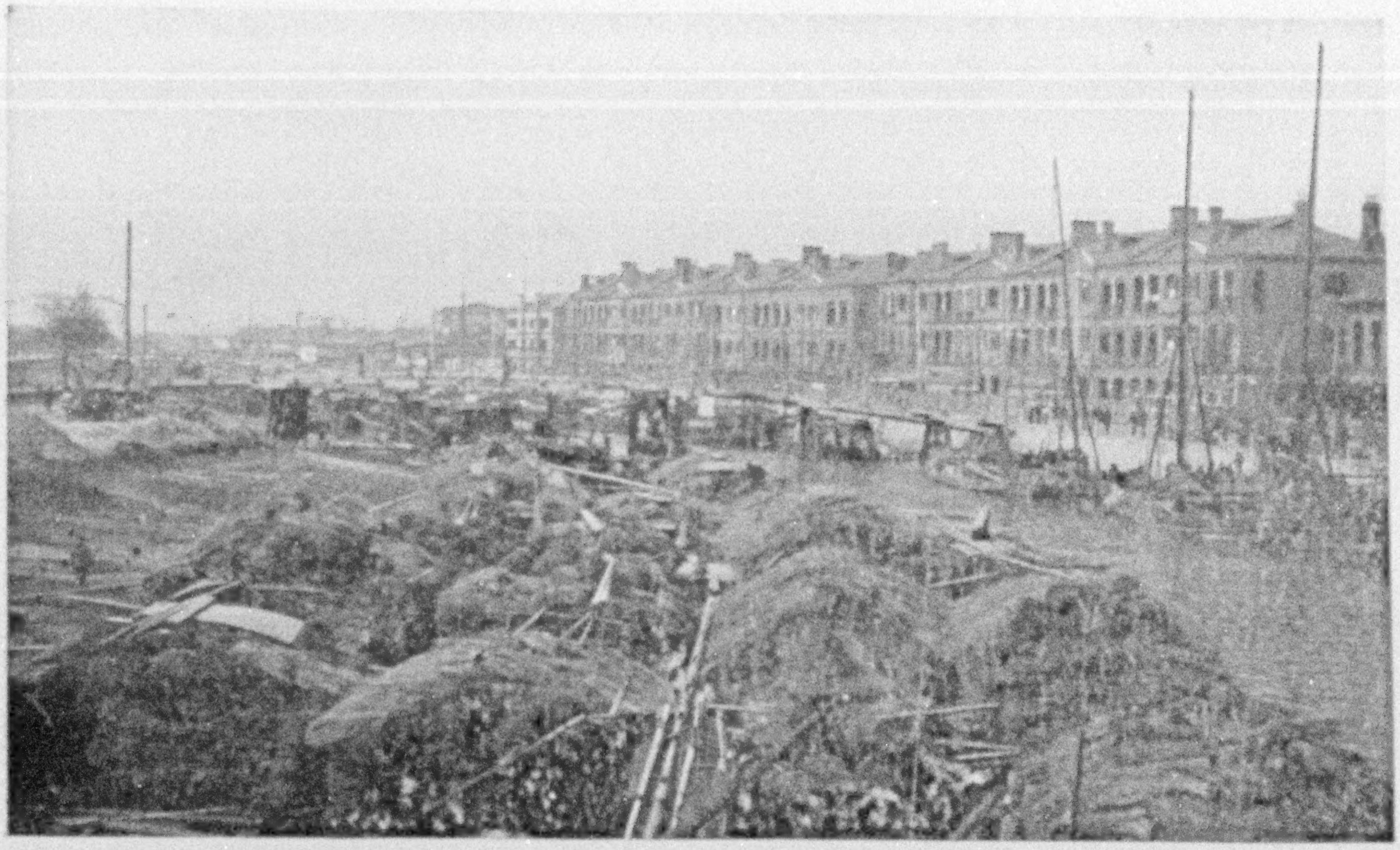
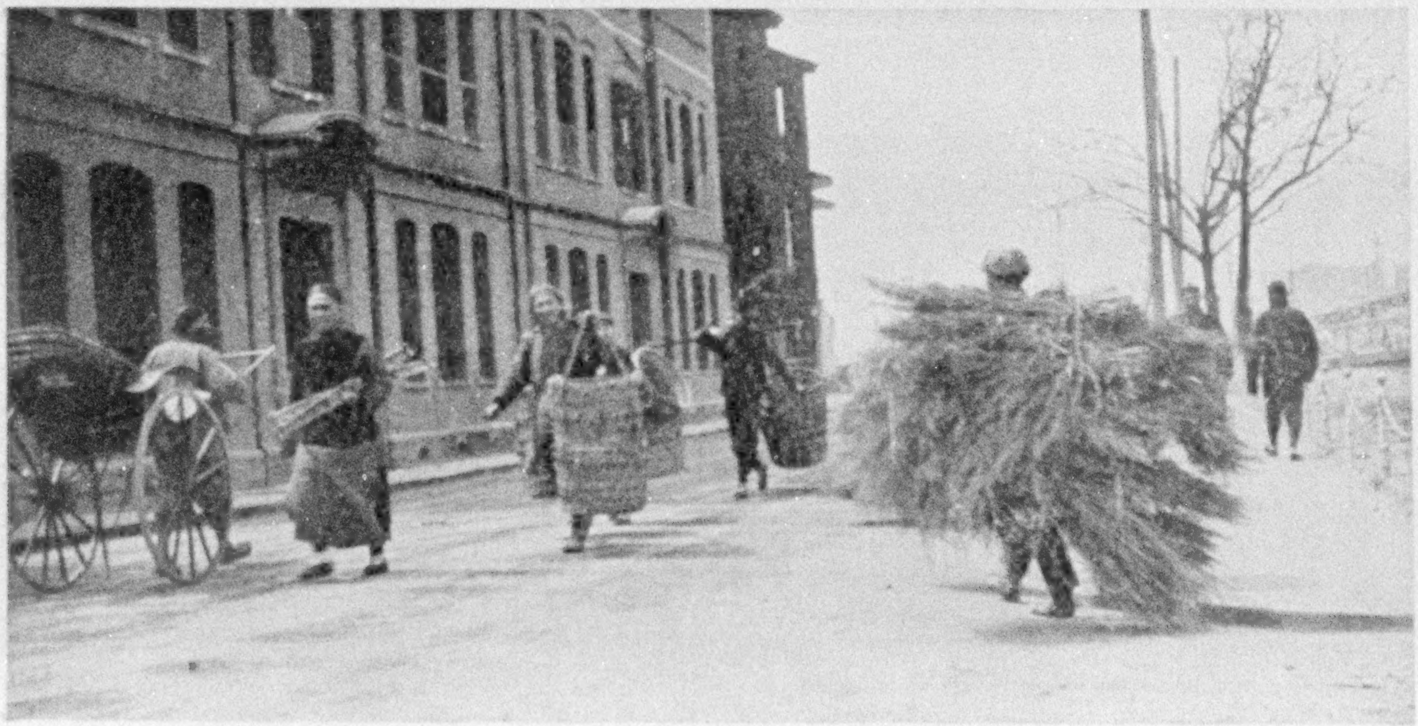
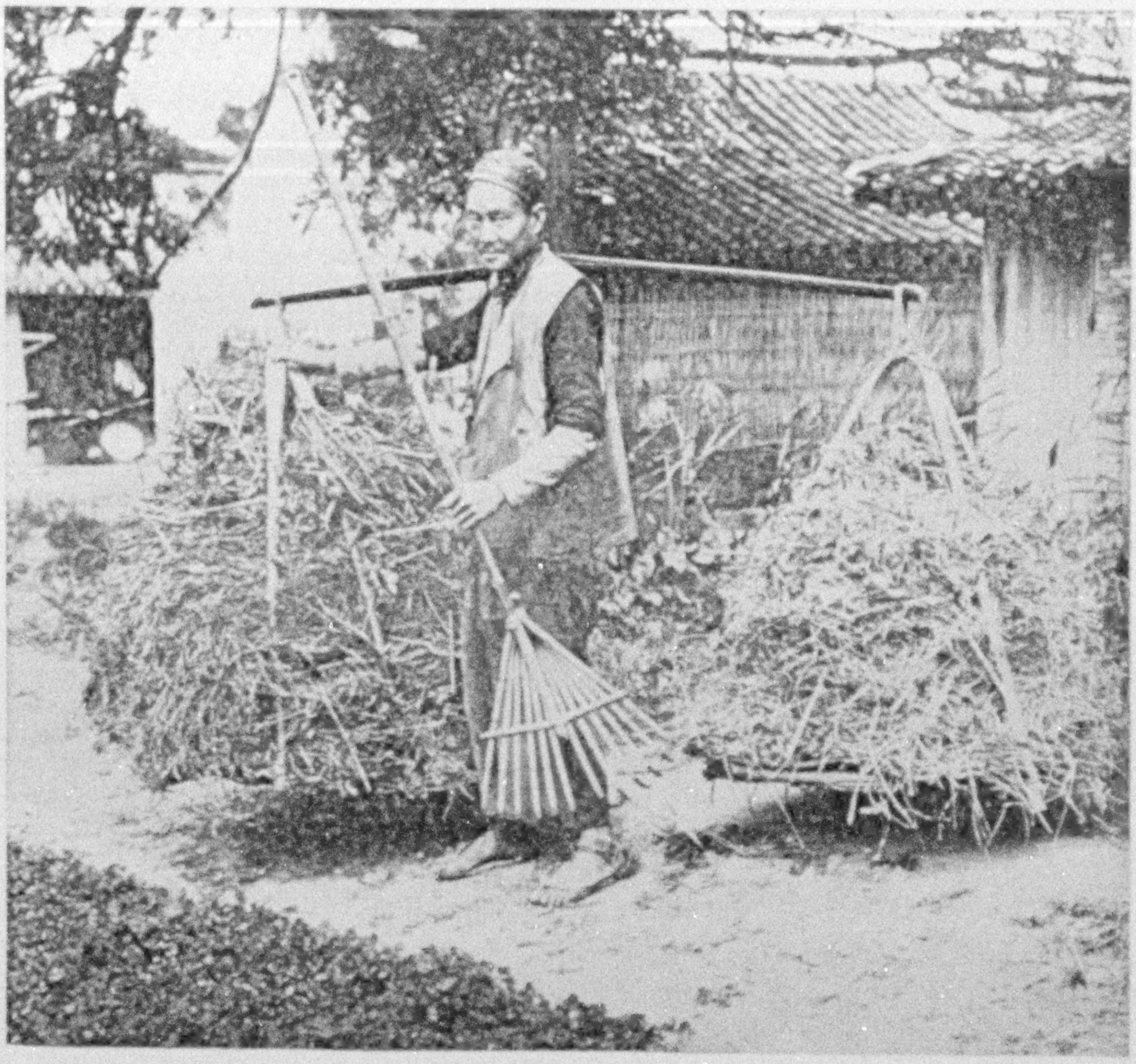


BOAT LOADS OF FUEL, MAINLY BUNDLES OF RICE STRAW AND COTTON STEMS, ON SOOCHOW CREEK, SHANGHAI



RICE STRAW FUEL BEING CONVEYED FROM CANAL BOATS TO CITY MARKET STALLS



DRIED GRASS FUEL GATHERED ON GRAVE LANDS, SHANGHAI

The man holds the typical rake of the Far East, made by simply bending bamboo splints claw-shape, and securing them as seen in the engraving

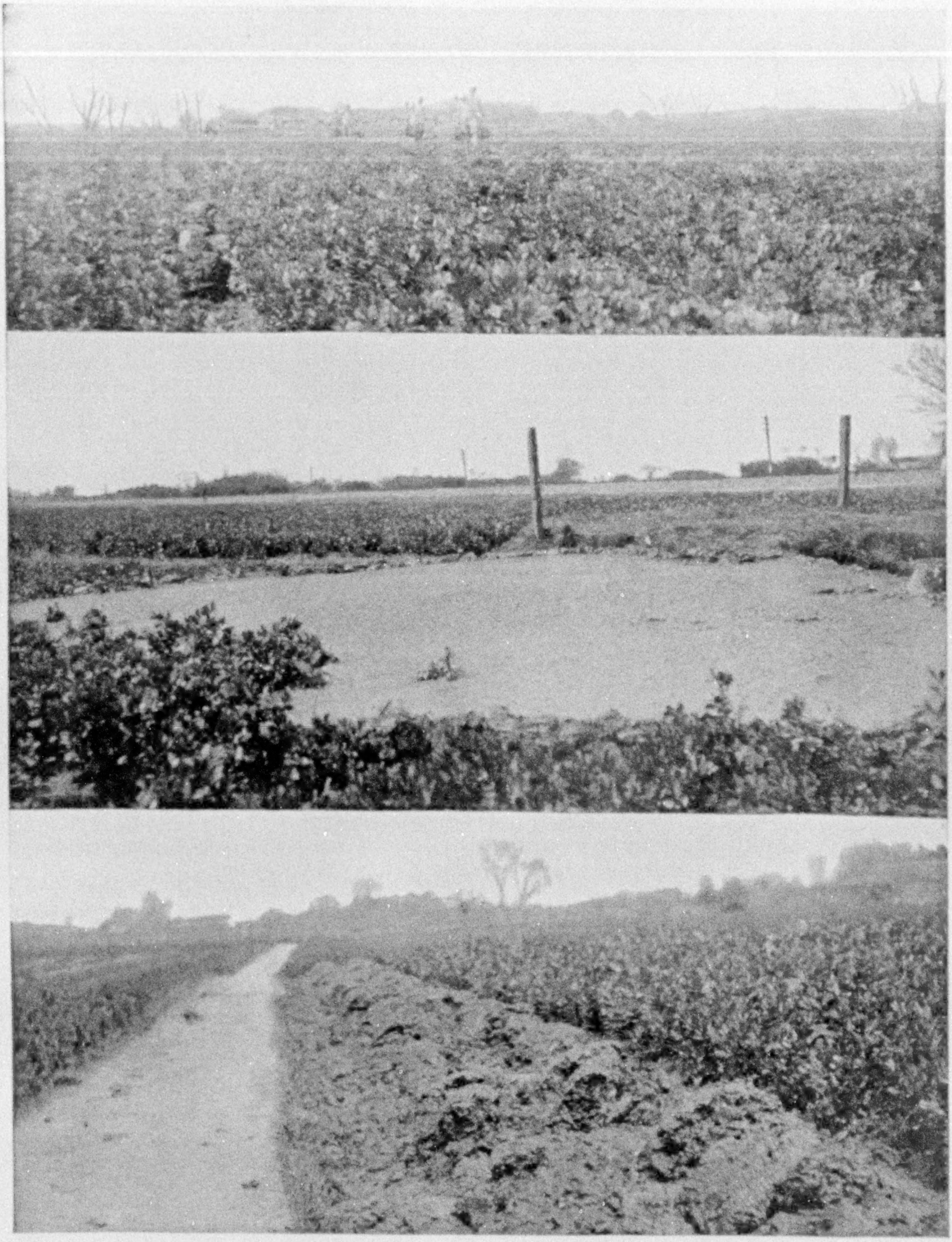
amounted to 23,850,295 tons, which is an average of 1.75 tons per acre of their 21,321 square miles of cultivated land in their four main islands.

In 1908 the International Concessions of the city of Shanghai sold to one Chinese contractor for $31,000, gold, the privilege of collecting 78,000 tons of human waste, under stipulated regulations, and of removing it to the country for sale to farmers. A flotilla of boats is engaged daily in Shanghai throughout the year in this service.

On the basis of the data of Wolff, Kellner, and Carpenter, or of Hall, the people of the United States and of Europe are pouring into the sea, lakes, or rivers, and into the underground waters from 5,794,300 to 12,000,000 pounds of nitrogen; 1,881,900 to 4,151,000 pounds of potassium, and 777,200 to 3,057,600 pounds of phosphorus per million of adult population annually, and this waste we esteem one of the great achievements of our civilization.

In the Far East, for more than 30 centuries, these enormous wastes have been religiously saved, and today the 400 million of adult population send back to their fields annually 150,000 tons of phosphorus; 376,000 tons of potassium, and 1,158,000 tons of nitrogen comprised in a gross weight exceeding 182 million tons, gathered from every home, from the country villages, and from the great cities like Hankau-Wuchang-Hanyang, with its 1,770,000 people swarming on a land area delimited by a radius of four miles.

Man is the most extravagant accelerator of waste the world has ever endured. His withering blight has fallen upon every living thing within his reach, himself not excepted, and his besom of destruction in the uncontrolled hands of

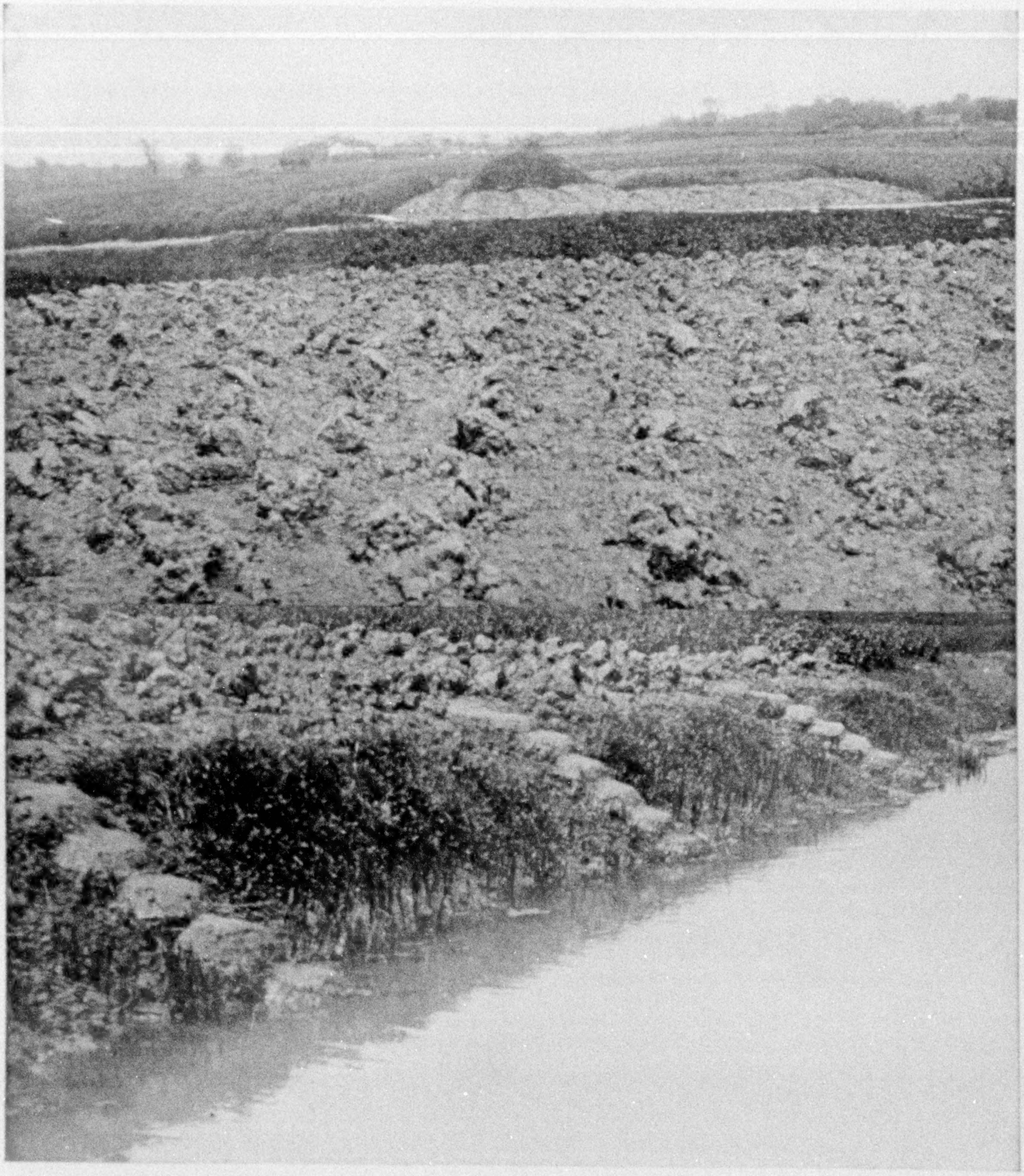


FERTILIZING THE FIELDS WITH CANAL MUD

In the lower section, along the path, basketfuls of canal mud had been applied in two rows at the rate of more than 100 tons per acre. The upper section shows three men distributing canal mud between the rows of a field of windsor beans.

This farmer was paying his laborers one hundred cash per day and providing their meals, which he estimated worth two hundred cash more, making twelve cents, gold, for a ten-hour day. Judging from what we saw and from the amount of mud carried per load, we estimated the men would distribute not less than eighty-four loads of eighty pounds each per day, an average distance of five hundred feet, making the cost 3.57 cents, gold, per ton for distribution.

XUM



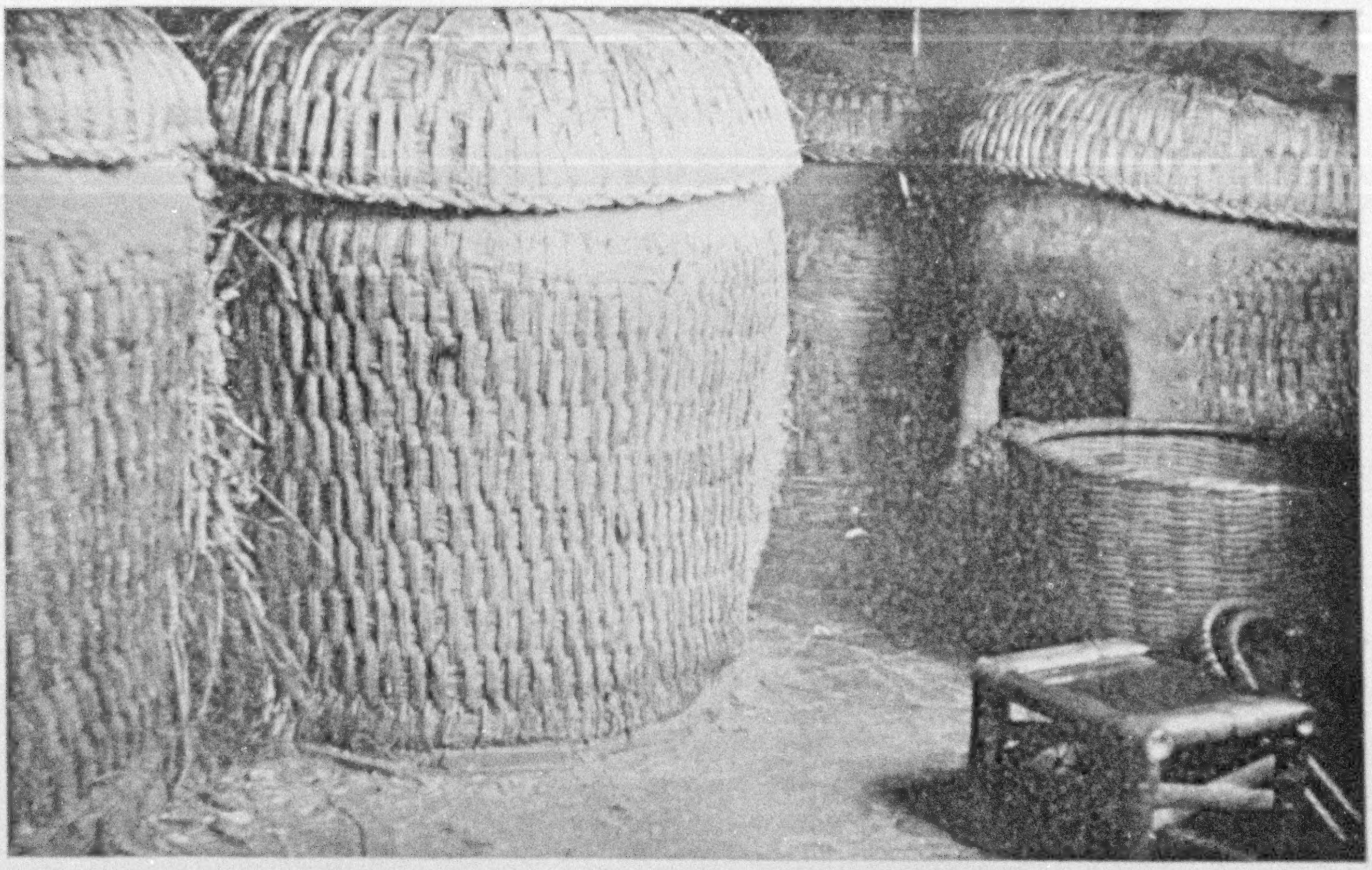
SECTION OF FIELD COVERED WITH PILES OF CANAL MUD RECENTLY APPLIED AT THE RATE OF MORE THAN 70 TONS PER ACRE

Taken out of the canal up the three flights of earth steps shown in the lower part of the figure

a generation has swept into the sea soil fertility which only centuries of life could accumulate, and yet this fertility is the substratum of all that is living.

RIVERS OF PHOSPHORUS

The rivers of North America are estimated to carry to the sea more than 500 tons of phosphorus with each cubic mile of water. To such loss modern civilization is adding that of hydraulic sewage disposal, through which the waste of 500 millions of people might be more than 194,300 tons of phosphorus annually, which could not be replaced by 1,295,000 tons of rock phosphate 75 per cent pure.



FOUR CHINESE INCUBATORS IN A ROOM WHERE THERE ARE THIRTY, EACH HAVING A CAPACITY OF 1,200 HEN EGGS

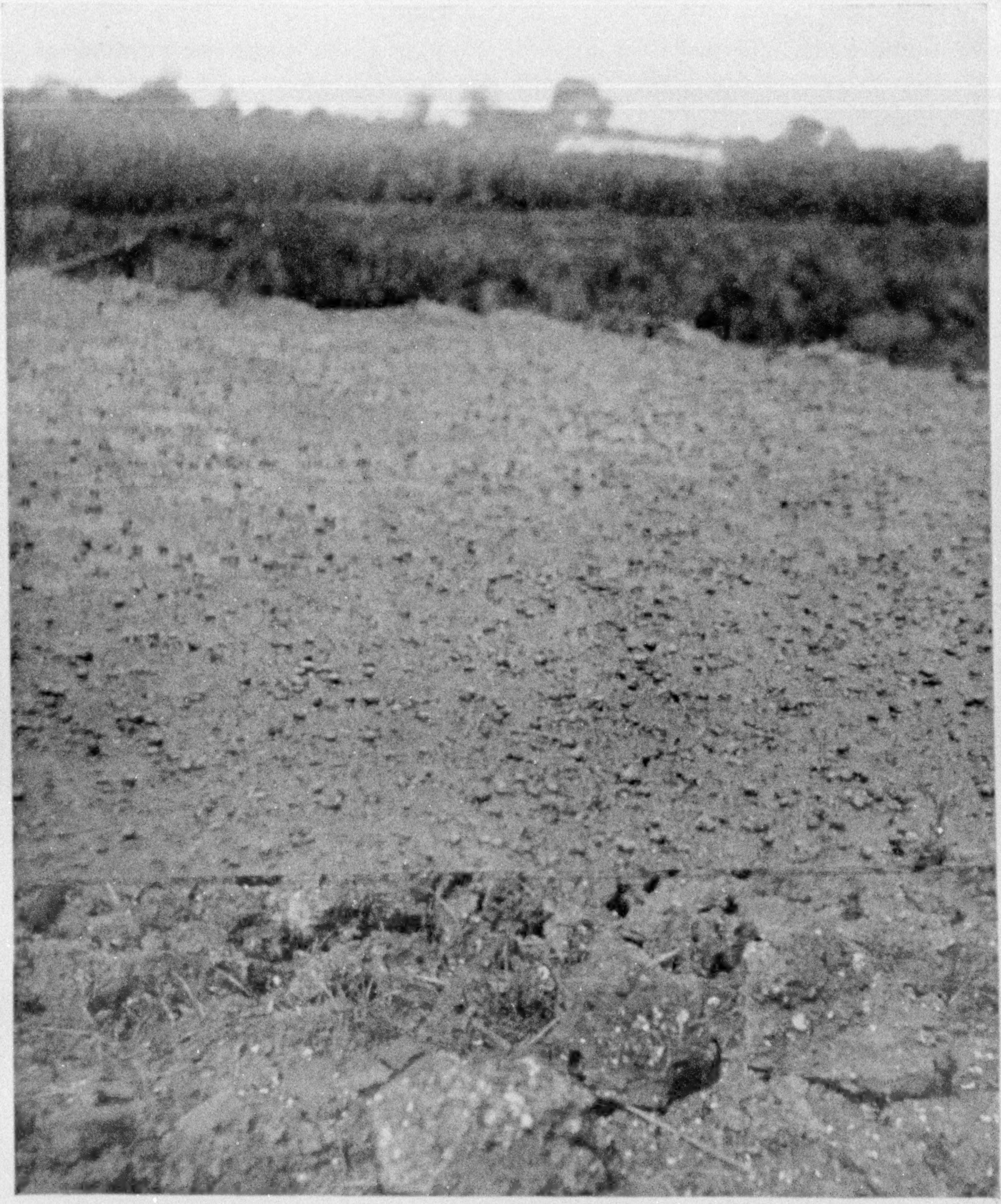
Each incubator consists of a large earthenware jar having a door cut in one side, through which live charcoal may be introduced and the fire partly smothered under a layer of ashes, this serving as the source of heat. The jar is thoroughly insulated, cased in basketwork, and provided with a cover, as seen in the illustration. Inside the outer jar rests a second of nearly the same size, as one teacup may in another. Into this is lowered the large basket with its 600 hen eggs, 400 duck eggs, or 175 goose eggs, as the case may be. After a basket of hen eggs has been incubated four days it is removed and the eggs examined by lighting, to remove *those which are infertile before they have been rendered unsalable. The infertile eggs go to the store and the basket is returned to the incubator.* Duck eggs are similarly examined after two days' and again after five days' incubation, and goose eggs after six days and again after fourteen days. Through these precautions practically all loss from infertile eggs is avoided and from 95 to 98 per cent of the fertile eggs are hatched, the infertile eggs ranging from 5 to 25 per cent.

The Mongolian races, with a population now approaching the figure named, occupying an area little more than one-half that of the United States, tilling less than 800,000 square miles of land, and much of this during 20, 30, or perhaps 40 centuries, unable to avail themselves of mineral fertilizers, could not survive and tolerate such waste.

Not even in great cities like Canton, built in the meshes of tide-swept rivers and canals; like Hankau, on the banks of one of the largest rivers in the world; nor yet in modern Shanghai, Yokohama, or Tokyo, is such waste permitted. To them such a practice has meant race suicide, and they have resisted the temptation so long that it has ceased to exist.

Had the Mongolian races spread to and developed in North America instead of or as well as in eastern Asia, there might have been a Grand Canal, something as suggested on page 933, from the Rio Grande to the mouth of the Ohio River and from the Mississippi to Chesapeake Bay, constituting more than 2,000 miles of inland waterway, serving commerce, holding up and redistributing both the run-off water and the wasting fertility of soil erosion, spreading them over 200,000 square miles of thoroughly canalized coastal plains, so many of which are now impoverished lands, made so by the intolerable waste of a vaunted civilization.

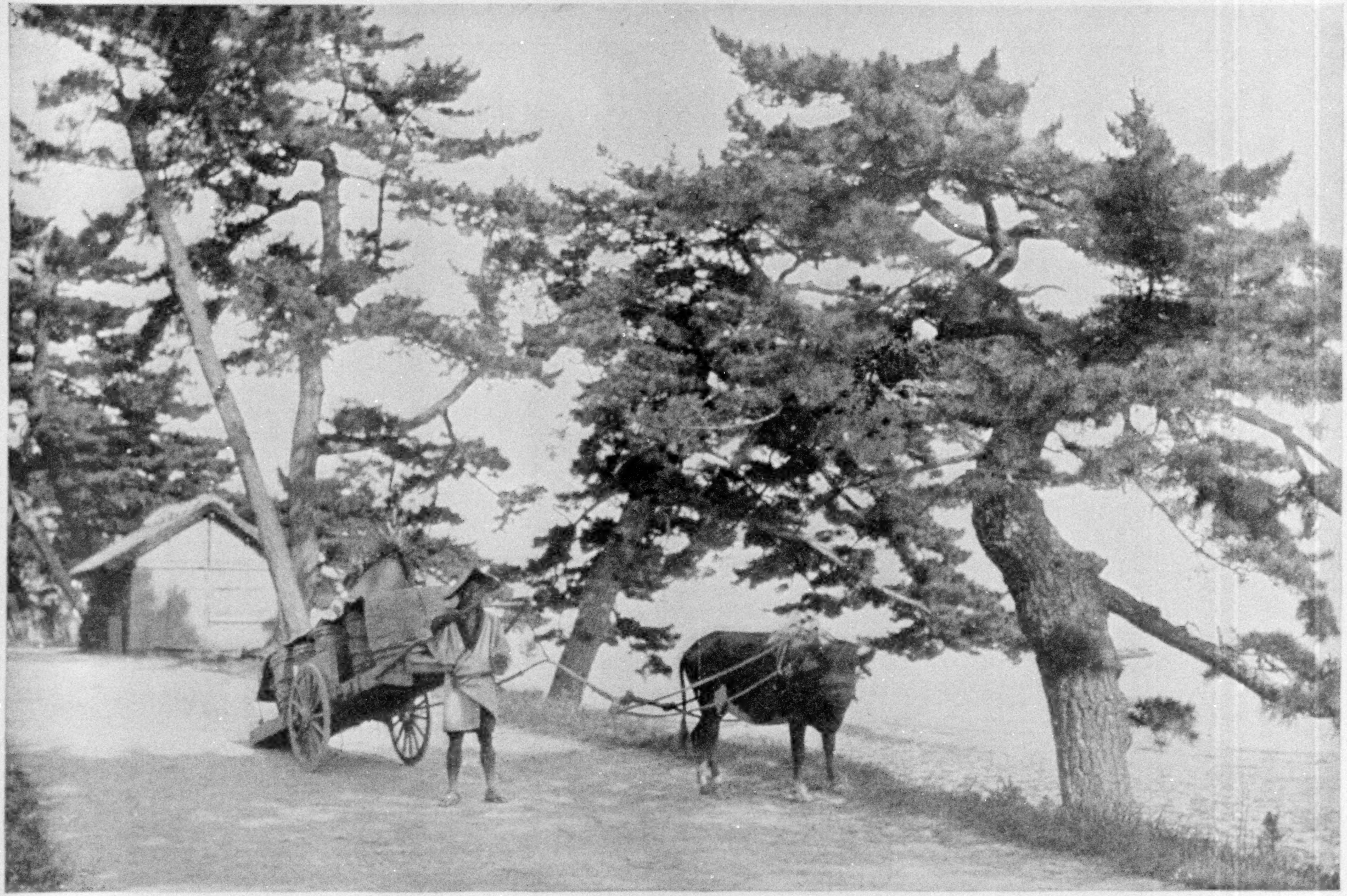
And who shall venture to enumerate



The recently removed canal mud, in the upper section of the illustration, is heavily charged with large snail shells. The lower section shows the shells in the soil of a recently spaded field.

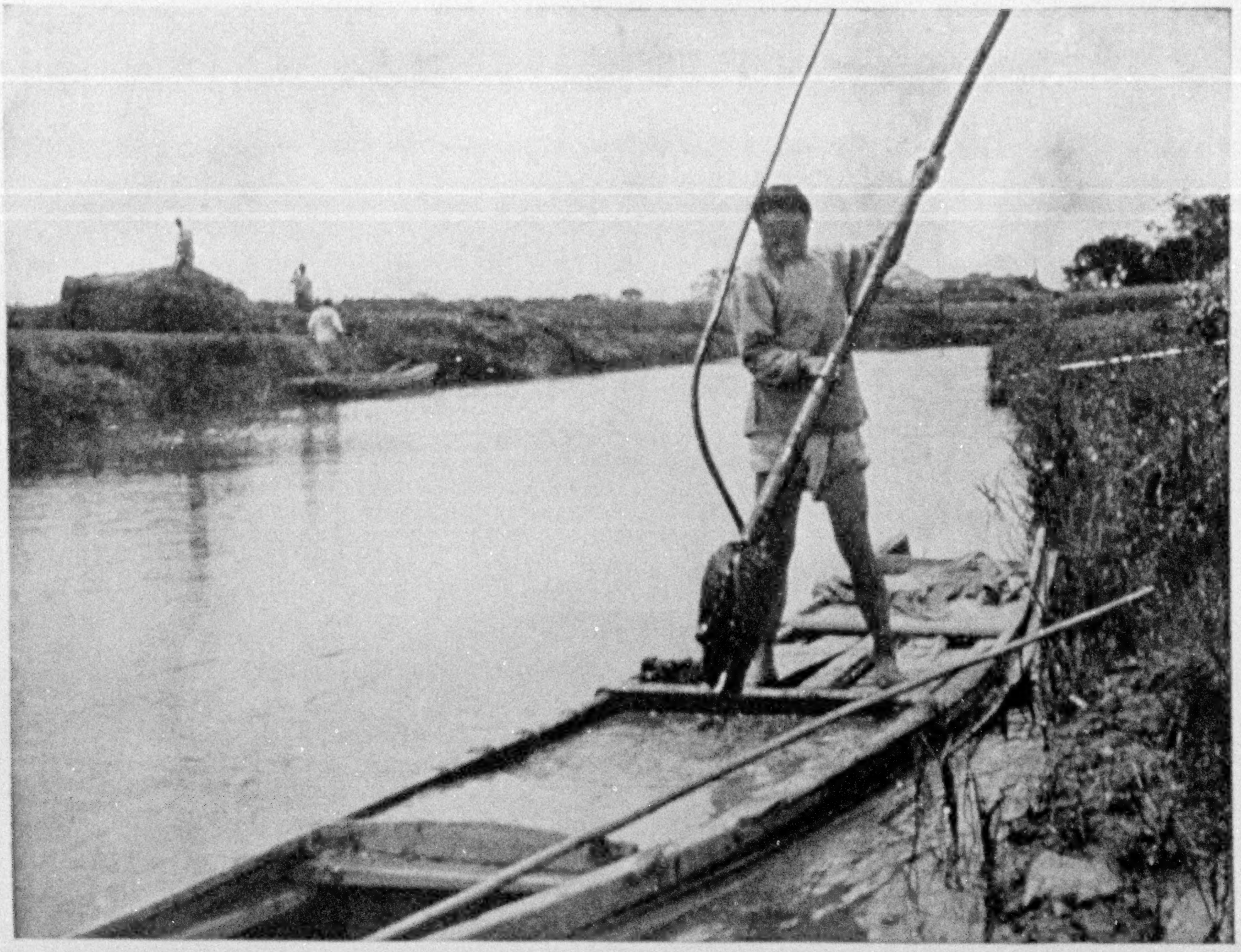
The shells are by no means as numerous generally as here seen, but yet sufficient to maintain the supply of lime. Several species of these snails are collected in quantities and used as food. Piles containing bushels of the empty shells were seen along the canals outside the villages. The snails are cooked in the shell and often sold by measure to be eaten from the hand, as we buy roasted peanuts or popcorn. When a purchase is made, the vender clips the spiral point from each shell with a pair of small shears. This admits air and permits the snail to be readily removed by suction when the lips are applied to the shell.

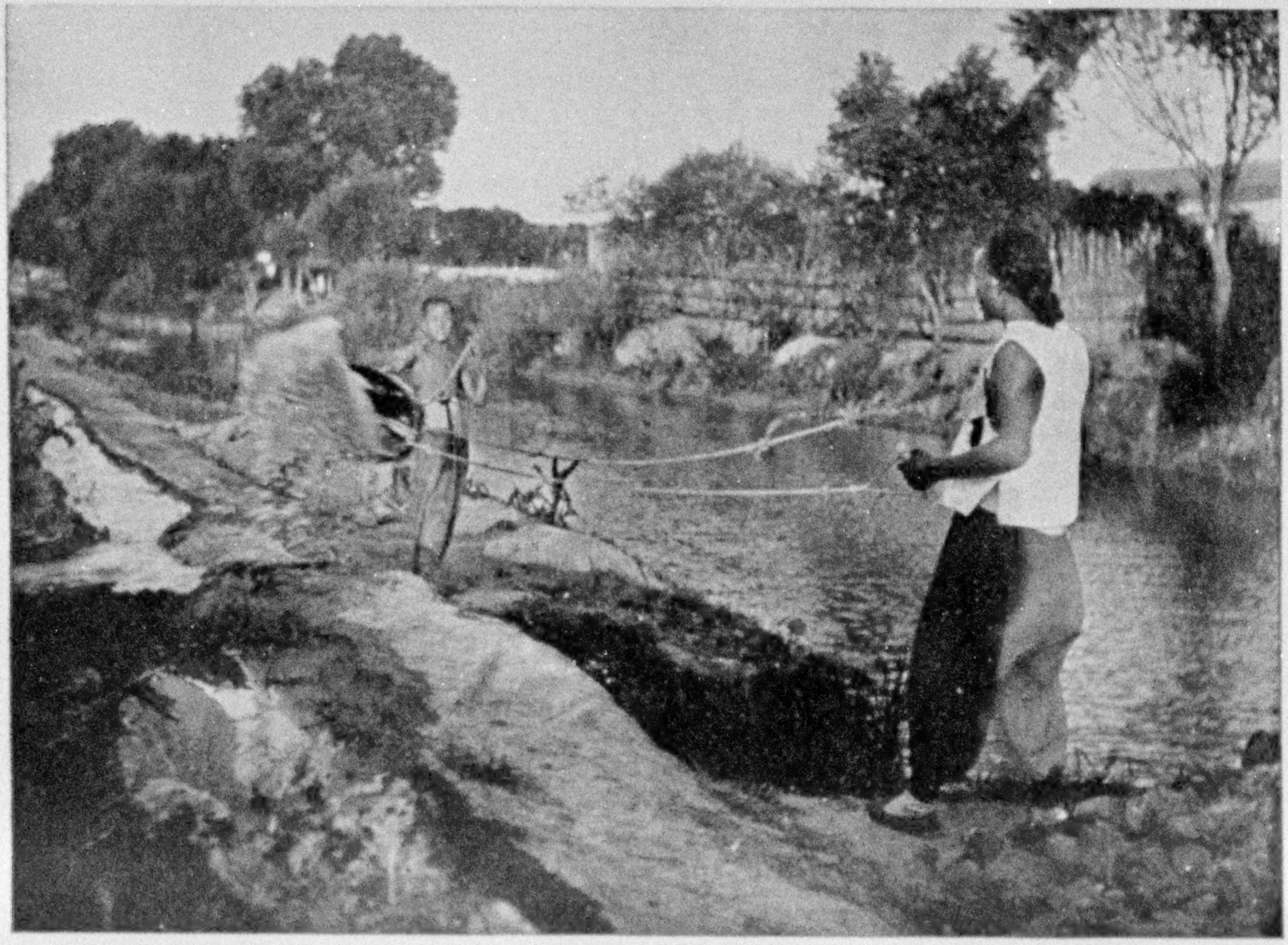
XUM



TYPE OF CONVEYANCE EXTENSIVELY USED IN JAPAN FOR THE REMOVAL OF CITY AND VILLAGE WASTE

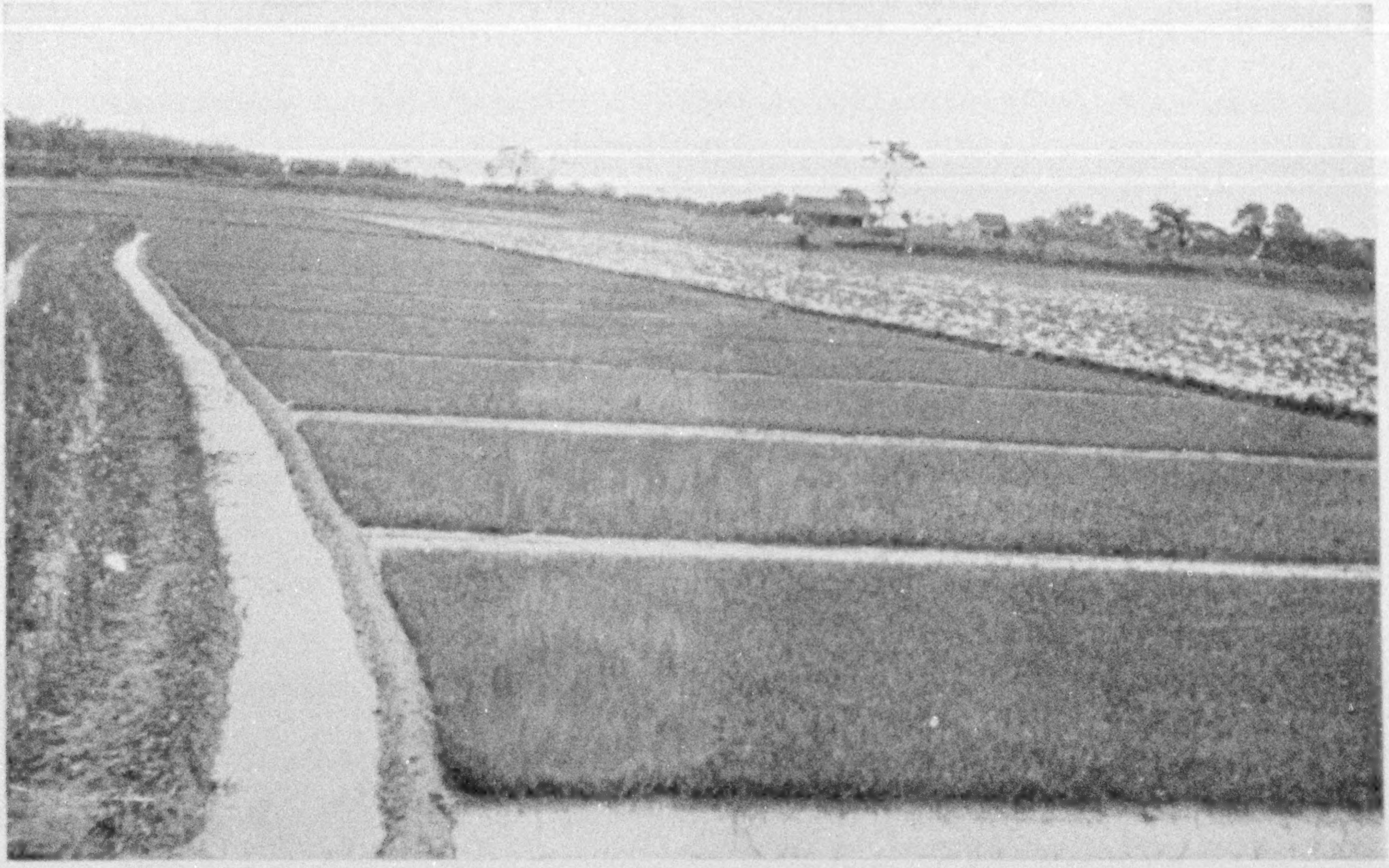
Such carts are even more frequently drawn by men than by cattle or horses, and tightly covered casks, supported on saddles, are borne on the backs of both cattle and horses, while men carry pails long distances on their shoulders, using the carrying pole





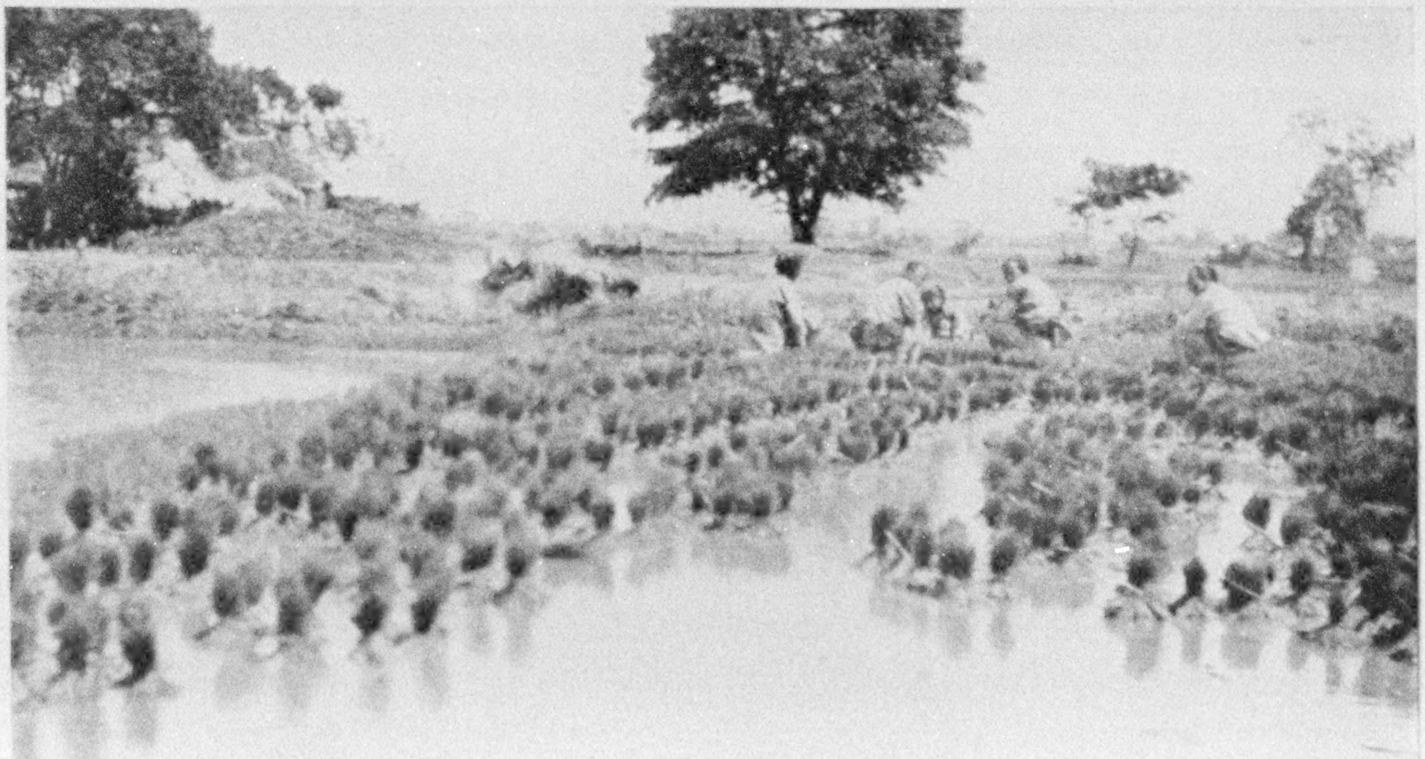
THE YOUNG MAN IS LOADING HIS BOAT WITH CANAL MUD, USING THE LONG-HANDLED CLAM SHELL DREDGE, WHICH HE CAN OPEN AND CLOSE AT WILL

IRRIGATION BY MEANS OF THE SWINGING BASKET, PROVINCE OF CHI-LI, CHINA



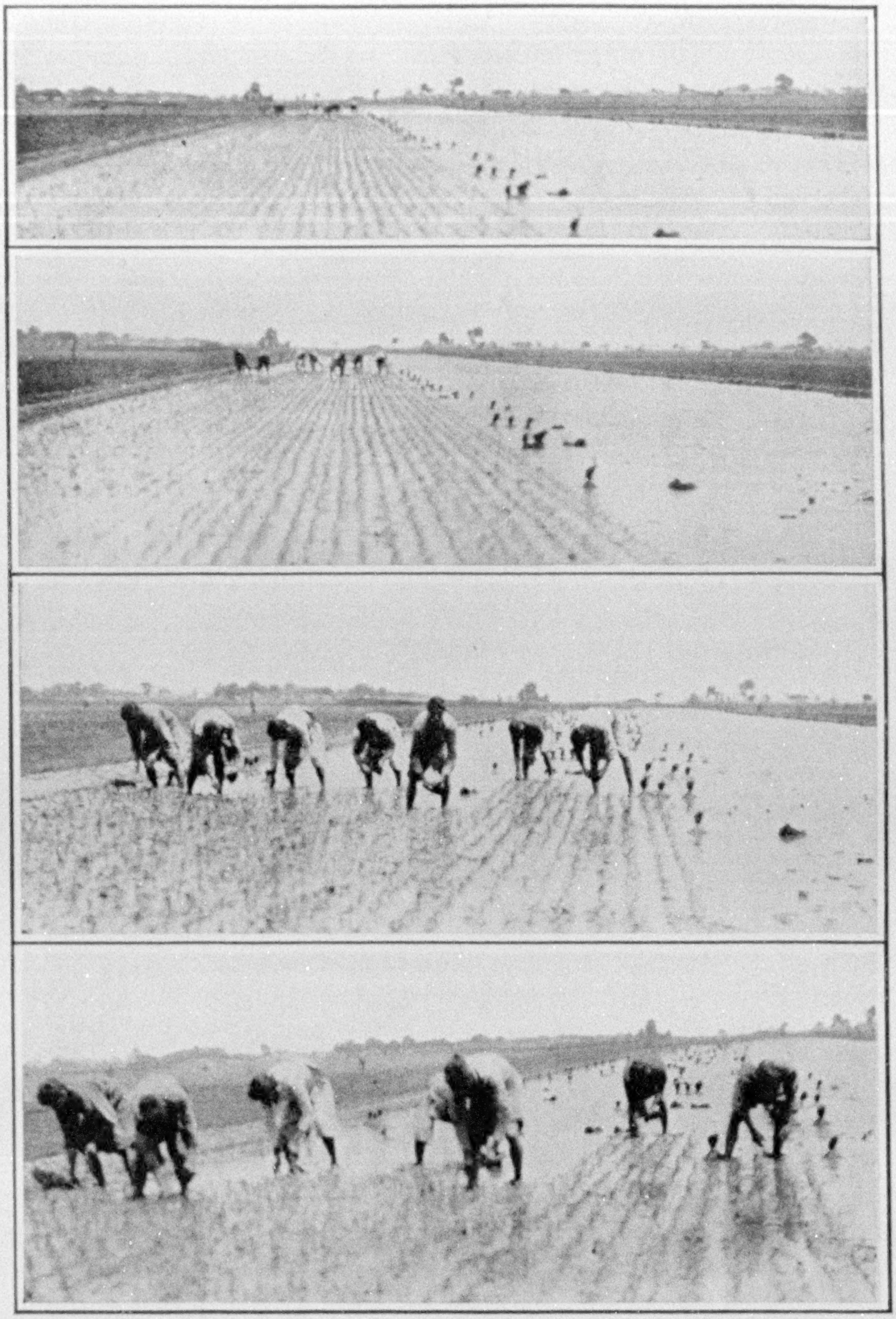
NURSERY BED OF RICE 29 DAYS PLANTED

Showing irrigation furrows; field beyond flooded, partly plowed. The rice in the nursery bed is nearly ready for transplanting



GROUP OF CHINESE WOMEN PULLING RICE IN A NURSERY BED, TYING THE PLANTS IN BUNDLES PREPARATORY TO TRANSPLANTING

XUM

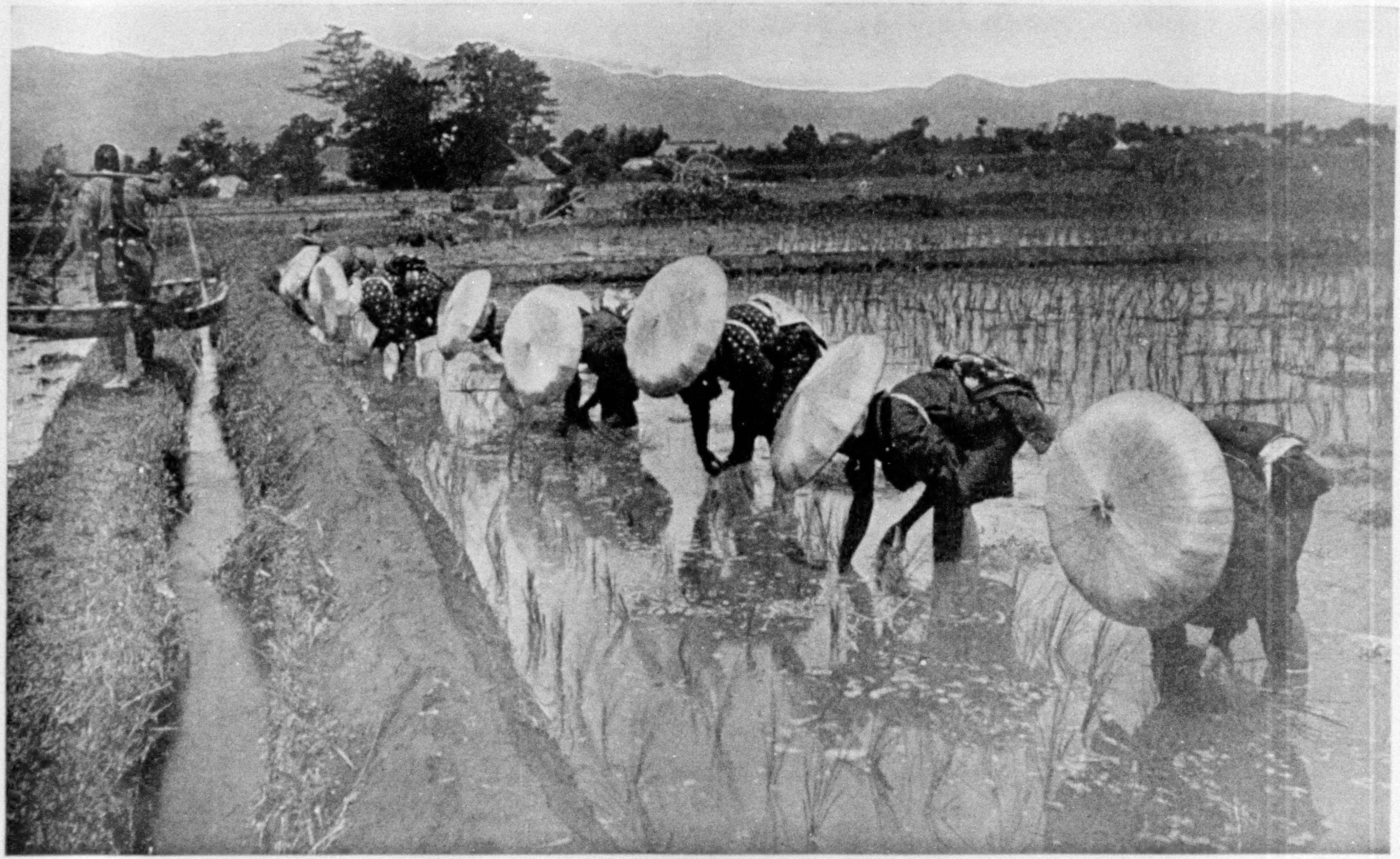


TRANSPLANTING RICE IN CHINA

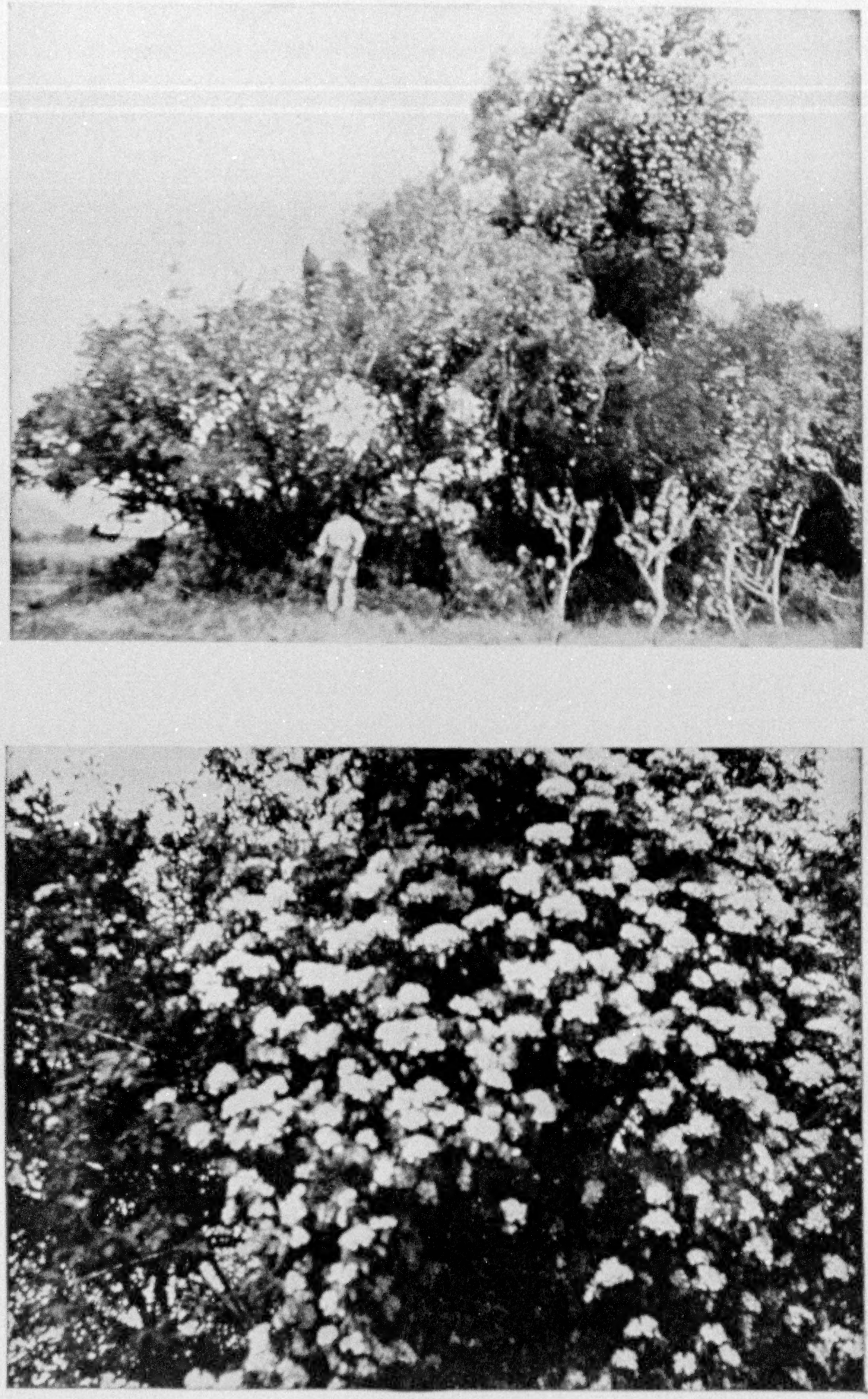
Four views taken from the same point at intervals of 15 minutes, showing the progress made during 45 minutes.

The seven men in this group would thus set two and a third acres per day and, at the wage Mrs. Wu was paying, the cash outlay, if the help was hired, would be nearly 21 cents per acre. This is more cheaply than we are able to set cabbage and tobacco plants with our best machine methods. In Japan the women participate in the work of setting the plants more than in China.

After the rice has been transplanted its care, unlike that of our wheat crop, does not cease. It must be hoed, fertilized, and watered. To facilitate the watering all fields have been leveled, canals, ditches, and drains provided, and, to aid in fertilizing and hoeing, the setting has been in rows and in hills in the row.



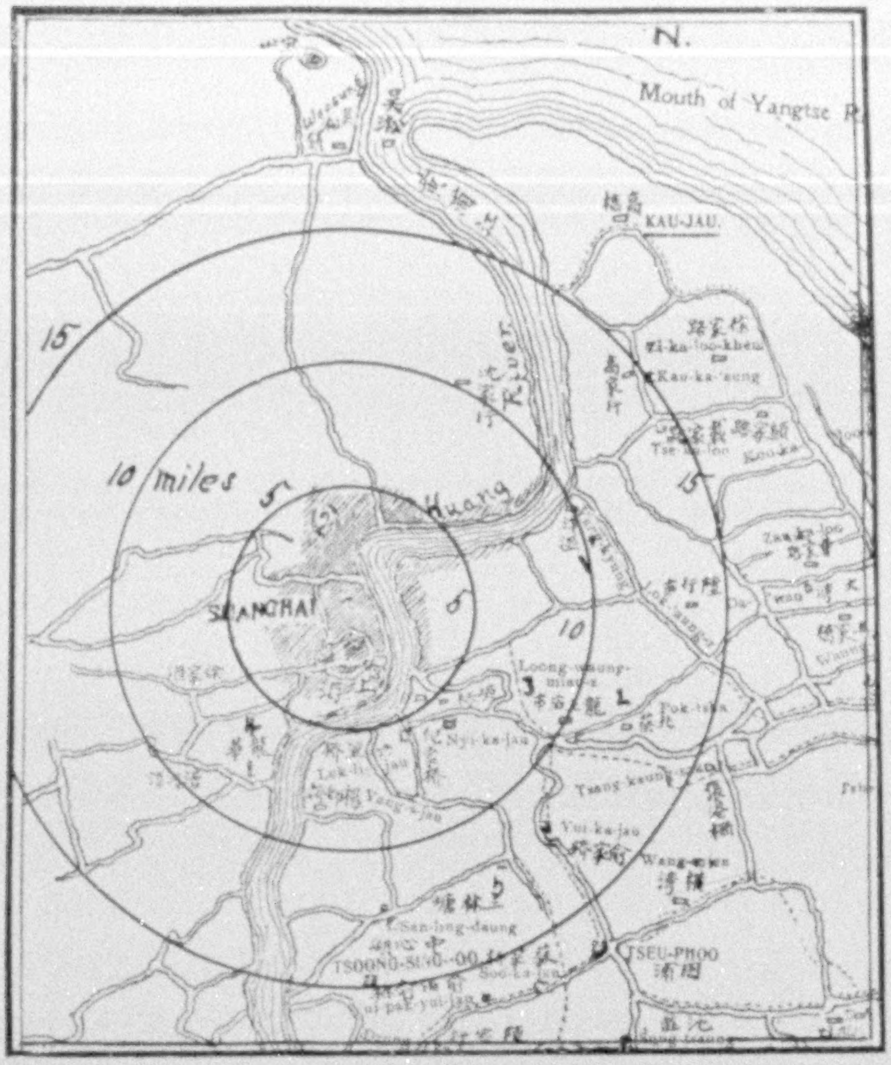
JAPANESE YOUNG WOMEN TRANSPLANTING RICE, UNDER BROAD SUNSHADE HATS



WILD WHITE ROSE IN BLOOM WEST OF SUCHOW, JUNE 2

The rosebush has overspread a clump of trees, one of which is 30 feet in height, enveloping it in a mantle of bloom. The lower illustration is a closer view, showing the clusters. The stem of this rose, 3 feet above the ground, measured 14.5 inches in circumference. If it would thrive in this country, nothing could be better for parks and pleasure drives.

XUM



MAP OF COUNTRY SURROUNDING SHANGHAI, CHINA

Showing a few of the many canals on which the waste of the city is conveyed by boat to the farms

the increase in the tonnage of sugar, bales of cotton, sacks of rice, boxes of oranges, baskets of peaches, and in the trainloads of cabbage, tomatoes, and celery such husbanding would make possible through all time; or number the increased millions these could feed and clothe?

TEMPORIZING WITH THE FUTURE

We may prohibit the exportation of our phosphorus, grind our limestone, and apply them to our fields, but this alone is only temporizing with the future. The more we produce, the more numerous our millions; the faster must present practices speed the waste to the sea, from whence neither money nor prayer can call them back.

If the United States is to endure; if we shall project our history even through 4,000 or 5,000 years, as the Mongolian nations have done, and if that history shall be written in continuous peace, free from periods of widespread famine or pestilence, this nation must orient itself; it must square its practices with a conservation of resources which can make endurance possible.

Sooner or later we must adopt a national policy which shall more completely conserve our water resources, utilizing them not only for power and transportation, but primarily for the maintenance of soil fertility and greater crop production through supplemental irrigation, and all these great national interests should be considered collectively, broadly, and with a view to the fullest and best possible coördination.

China, Korea, and Japan long ago struck the keynote of permanent agriculture, but the time has now come when they can and will make great improvements, and it remains for us and other nations to profit by their experience, to adopt and adapt what is good in their practice, and help in a world movement for the introduction of new and improved methods.

THE MOST EXTRAORDINARY CITY IN THE WORLD

Notes on Lhasa—The Mecca of the Buddhist Faith

By Shaoching H. Chuan, M. D.
Medical Officer of the Chinese Mission to Tibet

Photographs and Text Copyright by Dr. Shaoching H. Chuan

DURING the last century some ten foreign travelers have entered Tibet either as scientific explorers or as political representatives. The precipitous, lofty mountains, and the distant stretches of wild, uninhabited desert have made the journey too great a task for not a few of them to perform. Owing to these difficulties, together with the lack of traveling facilities and the stubborn resistance of the Tibetans, most of them had to be satisfied with nothing more than excursions into the regions near the boundary line. Few ever succeeded in seeing the interior of the sacred city, Lhasa, the capital of Tibet.

In the year 1904 the British military expedition to Tibet succeeded in entering Lhasa. As a result of this expedition much of the mystery and secrecy of the Forbidden City was revealed, and Lhasa no longer remained an unexplored religious center of the world. But the English did not have their curiosity satisfied. The shortness of their stay, the natives' suspicion of the white people, and the objection to foreigners entering the various sacred places proved the main obstacles to the realization of their wishes.

When I visited Lhasa, with the Chinese Mission to Tibet, in 1906-1907, I enjoyed several advantages. In the first place, having a Chinese official position, I did not awaken any suspicion in the minds of the natives. Furthermore, I was equipped with all modern facilities for taking records and photographs, and was given the privilege of visiting places hitherto and since denied to all foreigners. My comparatively longer sojourn in Lhasa also gave me ample opportunity for obtaining information and pictures that are rare and unique.

This article is written for the purpose of giving the readers of this magazine a brief account of the general characteristics of Lhasa only. Details of the customs, manners, government, and religious beliefs of the people cannot be given in the limited scope of this article; but I hope that readers may be able to learn much from the photographs, most of which are the only ones in existence.

Lhasa is situated in an impressive and picturesque valley, 16 miles long by 2 to 4 miles wide, and 12,500 to 13,500 feet above the sea-level. It is surrounded by mountains ranging from 3,000 to 6,000 feet above the valley. The weather is not excessively hot in summer nor bitterly cold in winter, for the high plateau is above the reach of the heat waves, and the still higher mountains seem to shut off the freezing winds. The natives call Lhasa "The Ideal City of the World," and certainly not without reason, at least as far as weather is concerned.

Only two entrances, one at the eastern end and the other at the western end, open into this isolated valley. Two highways go out from the entrances—the one on the east leading into China, and that on the west into Upper Tibet and British India. A large stream, called the Kichu, flows in from the eastern entrance, winds through the southern part of the valley, and emerges at the west, finally joining the Brahmaputra, which is one of the important rivers of the world.

As the traveler comes into the western entrance an imposing view of Lhasa Valley meets his eyes. The glittering golden

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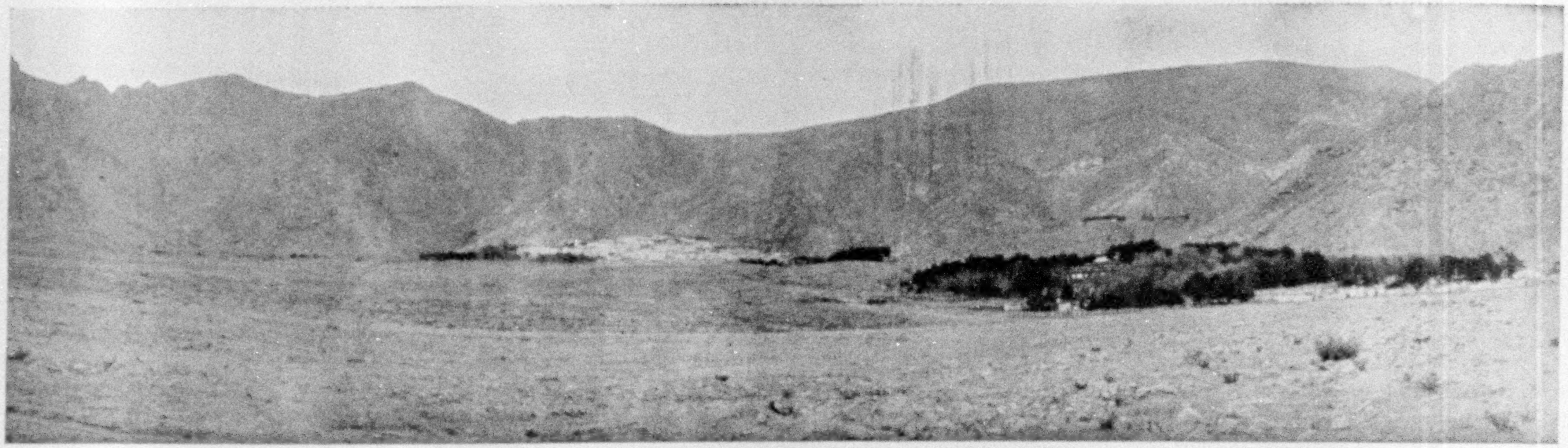
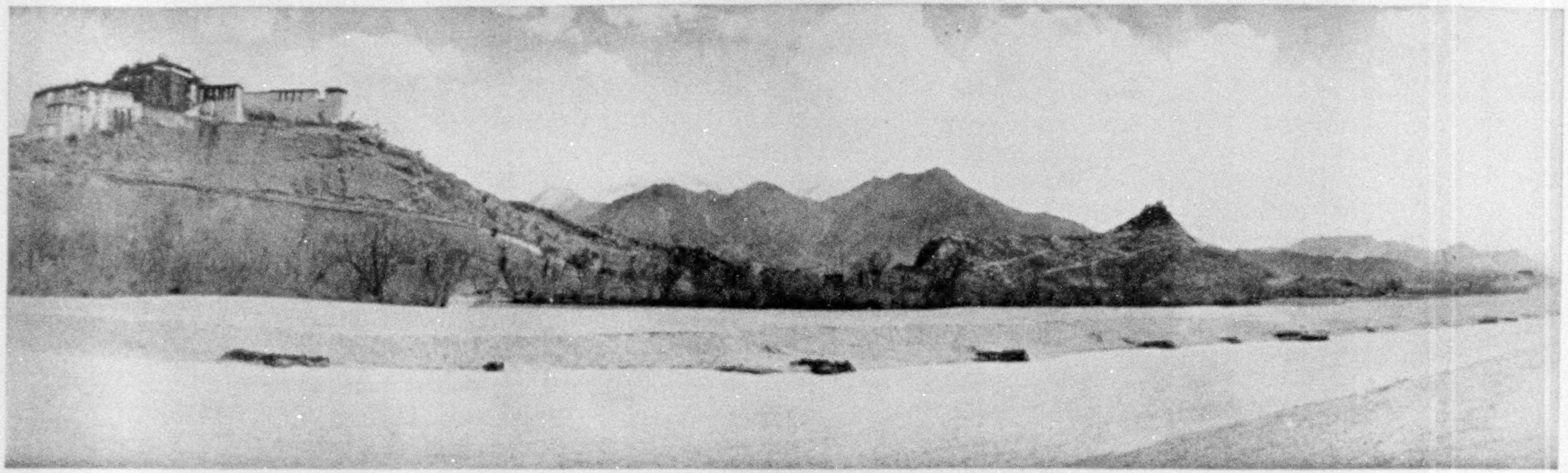


DUPON MONASTERY, WHERE 7,500 LAMAS LIVE, AND THE GREAT ORACLE OF STATE (SEE TEXT, PAGES 967 AND 973)



FROM LEFT TO RIGHT: POTALA HILL, MEDICAL HILL, AND MILLSTONE HILL roofs of the palace of the Dalai Lama on the hill Potala, contrasted with the rugged tops of the Medical Hill, apparently floating in the air, form a grand and brilliant sight, that can hardly fail to gladden the heart of the weary explorer. Further on, after passing by the extensive Dupon Monastery and the Great Oracle (see page 960), he arrives at the back of Potala Hill (see page 963), and is brought face to face with the Medical and the Millstone Hills (see pages 965 and 985).

Contrary to Oriental custom, the city of Lhasa has no wall. A broad highway is built around the city instead. Lhasa is 2 miles long and a little less than 1 mile wide. Its north and east sides are open, while the Ki River protects the southern part, with Potala and Medical Hills guarding the west side.

The city gate (see page 964), decorated with pagodas, opens between these two hills. The pagodas are built of white stone, with golden domes. These emblems of Lamaism are made even more magnificent by the reflection seen in the water. Indeed, any pilgrim can but feel satisfied, not to say sanctified, by gazing upon such a splendid and beautiful vision before entering the "Happiest Western World."

Nothing impresses the traveler more, as he first enters the city, than the palace of Dalai Lama (see pages 962 and 963). The ancient Vatican of Lhasa stands on the left, venerable and majestic, ever ready to welcome those who come to worship within its walls.

The western part of the city is practically uninhabited. One has to travel another mile before he finds himself in the city proper, the part of Lhasa which has long attracted the attention of adventurers.

The main streets of Lhasa are generally wide and fairly smooth. There is no heavy traffic in Tibet. Carts and carriages are beyond the natives' imagination. Every one travels on foot. The yak and the horse are the only two means of conveyance. One can easily see why the streets are generally so even. Only the Dalai Lama and the two Ambans ride in sedan-chairs. Other people are not allowed to enjoy this privilege.

The houses are usually built of stone and are two or three stories high. The outside looks clean, with its whitewash, but the inside is dark and dirty to the last degree. Rich and poor are all alike in this respect.

To my surprise and disgust, I found that the first floor of every house is always occupied by a yak stable. Hence every visitor is first welcomed by the yak stable, with its disagreeable odor constantly pouring out.

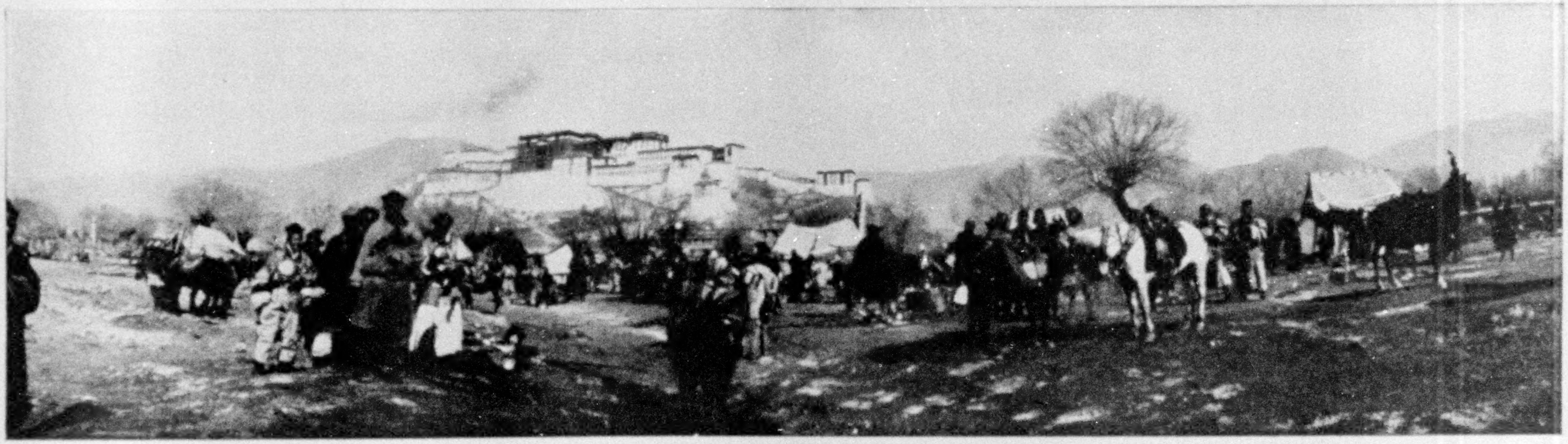
Like the Jewish style of building, all the houses have flat roofs, which are accessible by small doors. A peculiarity of Tibetan houses is that they have no chimneys. The windows serve the double purpose of letting the light come in and the smoke out. The walls are thus made very dark with soot.

THE PALACE OF THE DALAI LAMA

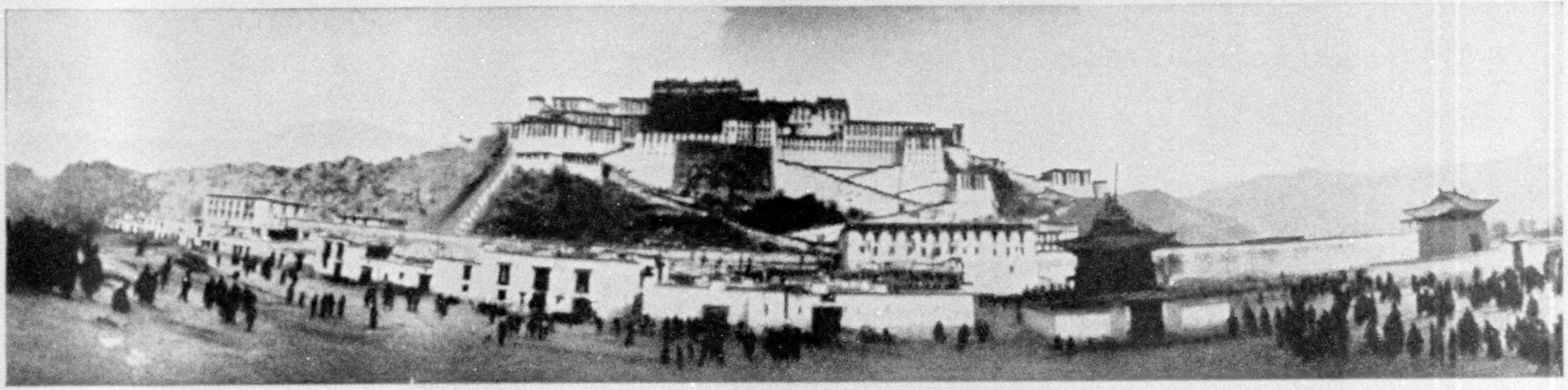
Most prominent and important of all the buildings in the city of Lhasa is undoubtedly the palace of Dalai Lama. It is a fortified palace located on the Potala Hill, at the western end of the city. It is about 4,000 feet high and 1,000 feet long, containing 490 rooms and 1,333 windows. The entire structure is built of stone, whitewashed on the outside, except the upper half of the middle portion, which is painted crimson. All the eaves of the roof and the copings of the zigzag-shaped steps are also crimson.

The Living Buddha occupies the central section of the upper part, while the rest is divided into lecture and prayer halls, executive department, treasury, granary, and bed-rooms for 350 Lamas. A sacred part of the palace is reserved for the topes, or tombs, of former Living Buddhas.

Below, in front, is a large paved arena which serves as the dancing ground. Outside of the arena are many buildings for printing prayers, casting bronze images, manufacturing incense, keeping cattle, slaughter-houses, stores, etc. Stone walls, with barracks and garrison on the top, protect the front, left, and right sides.

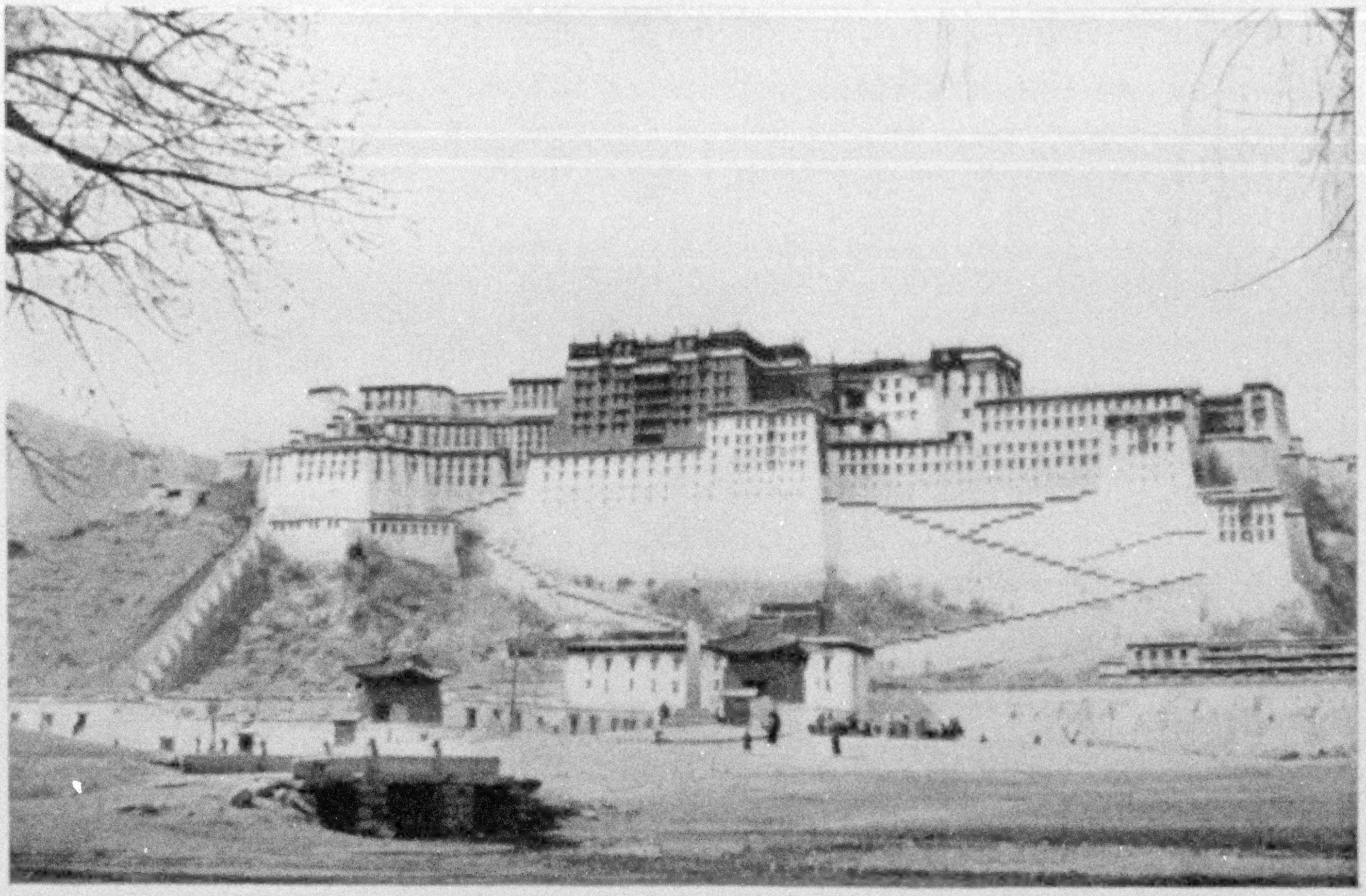


TIBETAN SOLDIERS ENCAMPED IN FRONT OF THE PALACE

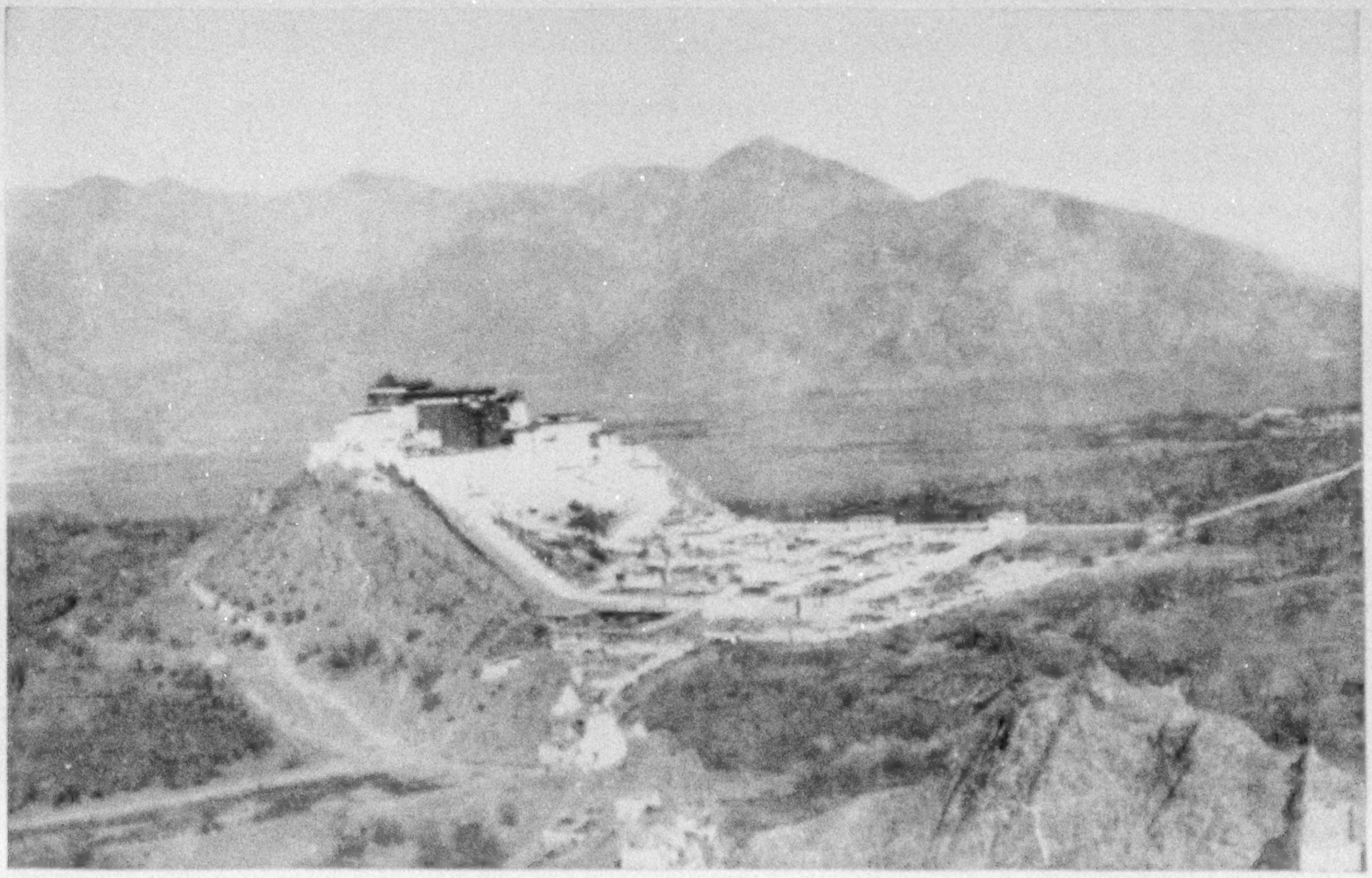


"THE NEW POTALA"

This photograph differs from others in that it has two extra great images of Buddha on the front of the wall of the palace. It is the only photograph of its kind that has ever been taken

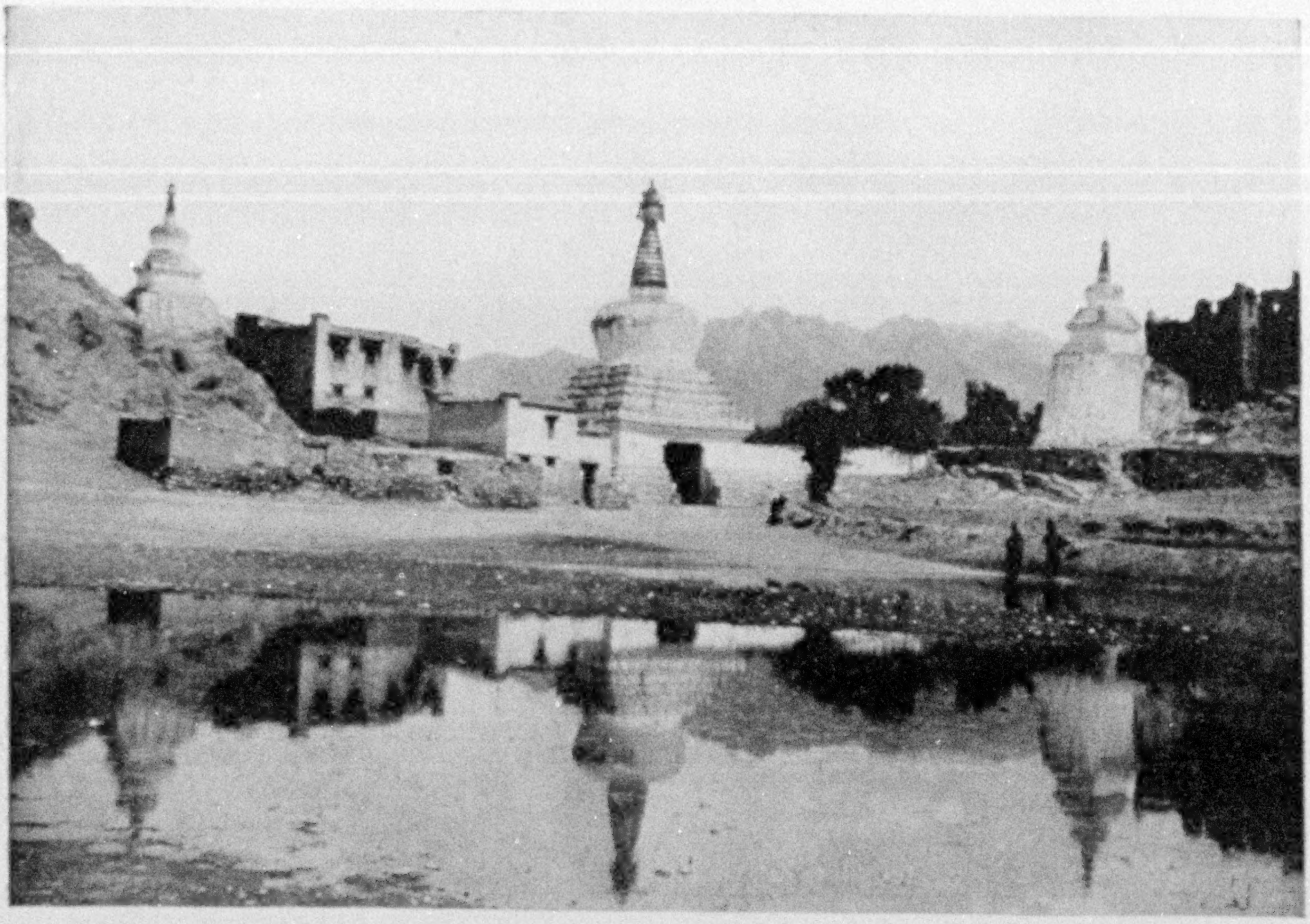


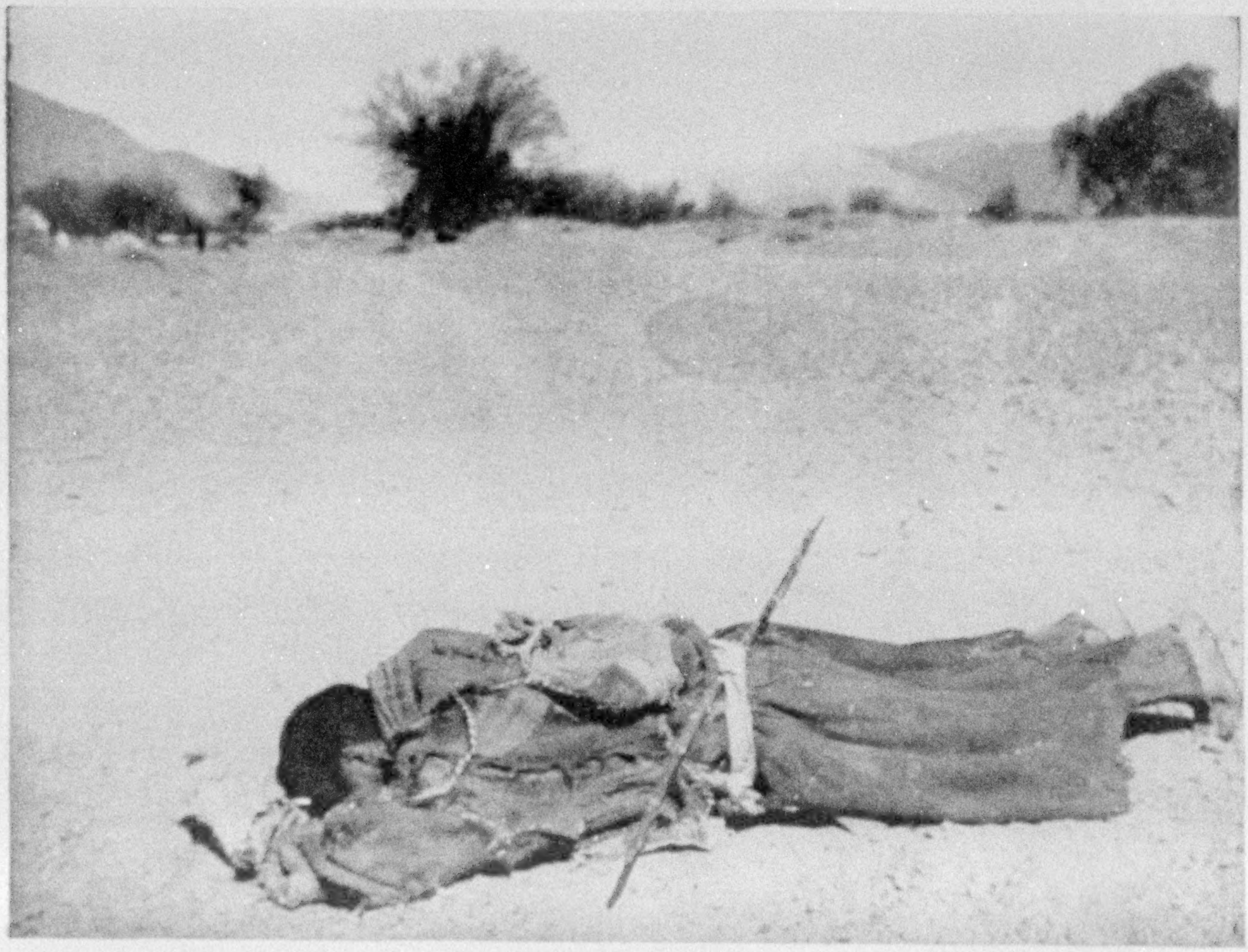
THE PALACE OF THE DALAI LAMA ON THE POTALA HILL



BIRD'S-EYE VIEW OF THE PALACE OF THE DALAI LAMA, WITH ITS FOREGROUND

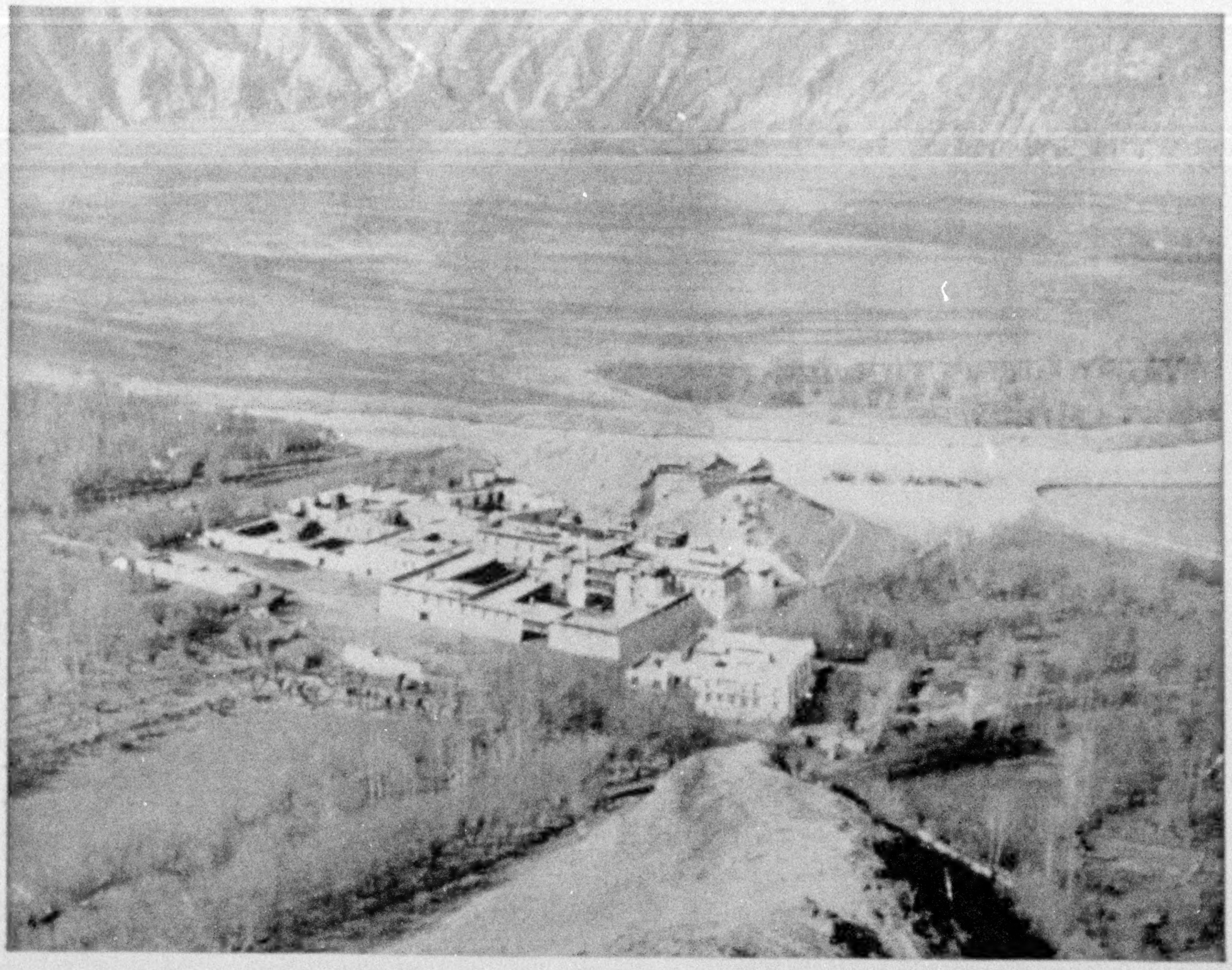
A portion of the city proper is seen on the extreme right (see text, pages 961, 965)





"PAGO-LING," THE MAIN ENTRANCE OF LHASA CITY

A TIBETAN MAKING PROSTRATION BEFORE THE PALACE IN WORSHIP



BIRD'S-EYE VIEW OF THE TEMPLE OF THE GOD OF WAR, BEHIND THE MILLSTONE HILL

Two yellow pavilions stand outside of the wall, in front of which is a granite pillar about 20 feet high. It is said that this pillar was built in order to protect the palace against attacks by evil spirits.

According to tradition, the work of this gigantic construction began about 1,200 years ago. The forts and garrisons were first built. Other parts of the palace were later additions. It took nearly ten centuries to complete this Lama Vatican; and it was not until 200 years ago that its present majestic appearance was finally attained.

Dwelling in such a heavenly abode, the Living Buddha cannot but look down upon the world with pride and dignity.

This magnificent mansion, with its colors of white, crimson, red, and brown, and its golden roofs, against the background of green grass and blue sky, forms a picture of splendor and beauty that can hardly be surpassed. It is not strange that pilgrims from all parts of the Buddhist world come to worship at this Mount of Holiness.

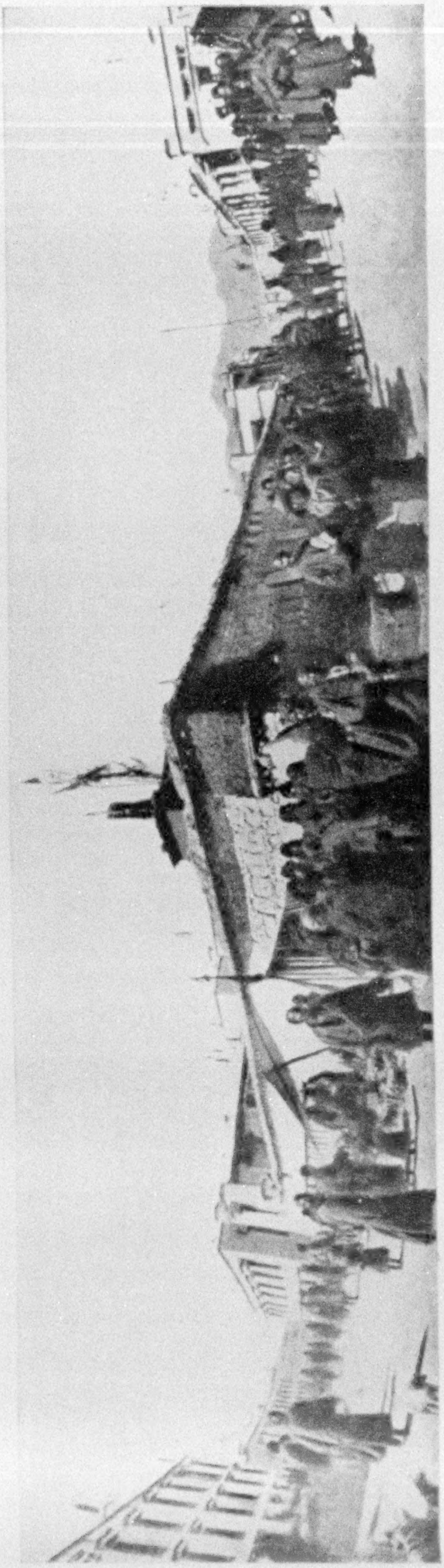
The Palace of Dalai Lama indeed bears out the statement that at Lhasa are to be found some of the noblest specimens of architecture in central Asia.

Noble and beautiful as the exterior of the palace is, the interior is quite the opposite. Like most Lama temples, the interior of the palace is dark and filthy. The rooms occupied by Dalai are the only clean portion of this much-revered religious edifice.

THE GREAT TEMPLE OF LHASA—CHO-KANG

The Great Temple of Lhasa stands conspicuous in the center of the city. Though its external appearance is not very attractive, the interior is fascinating in the highest degree (see page 969). Towers, pavilions, and golden roofs form the most beautiful exterior decorations.

Unlike most monasteries in Tibet, which are generally several stories high



THE BUSINESS SECTION OF LHASA CITY; NOTE THE FLAT ROOFS AND THE PRAYER-FLAGS

and built of massive stone blocks, this consists of large single-storied buildings in rows, one behind another, like the temples usually seen in China.

The great Cho-kang was built by the Chinese princess Wen-ch'eng, of the Tang dynasty, who was married to the Tibetan King Strong-tzan. It was she who first introduced into Tibet Chinese etiquette and manners and Hindoo literature, and taught the natives weaving and agriculture. Tibetans respected and loved her so devotedly that they had her canonized after her death. Her image was erected in this temple in memory of her great kindness and wonderful achievements.

Every year, on her birthday, the fifteenth of the tenth month (Tbetan), Tibetans come to this temple to perform various religious ceremonies signifying their undying gratefulness. On the same day a lantern festival also is observed. The whole city is illuminated with butter lamps made in the shape of a Chinese lady's shoe, the emblem of the mother of Tibetan civilization.

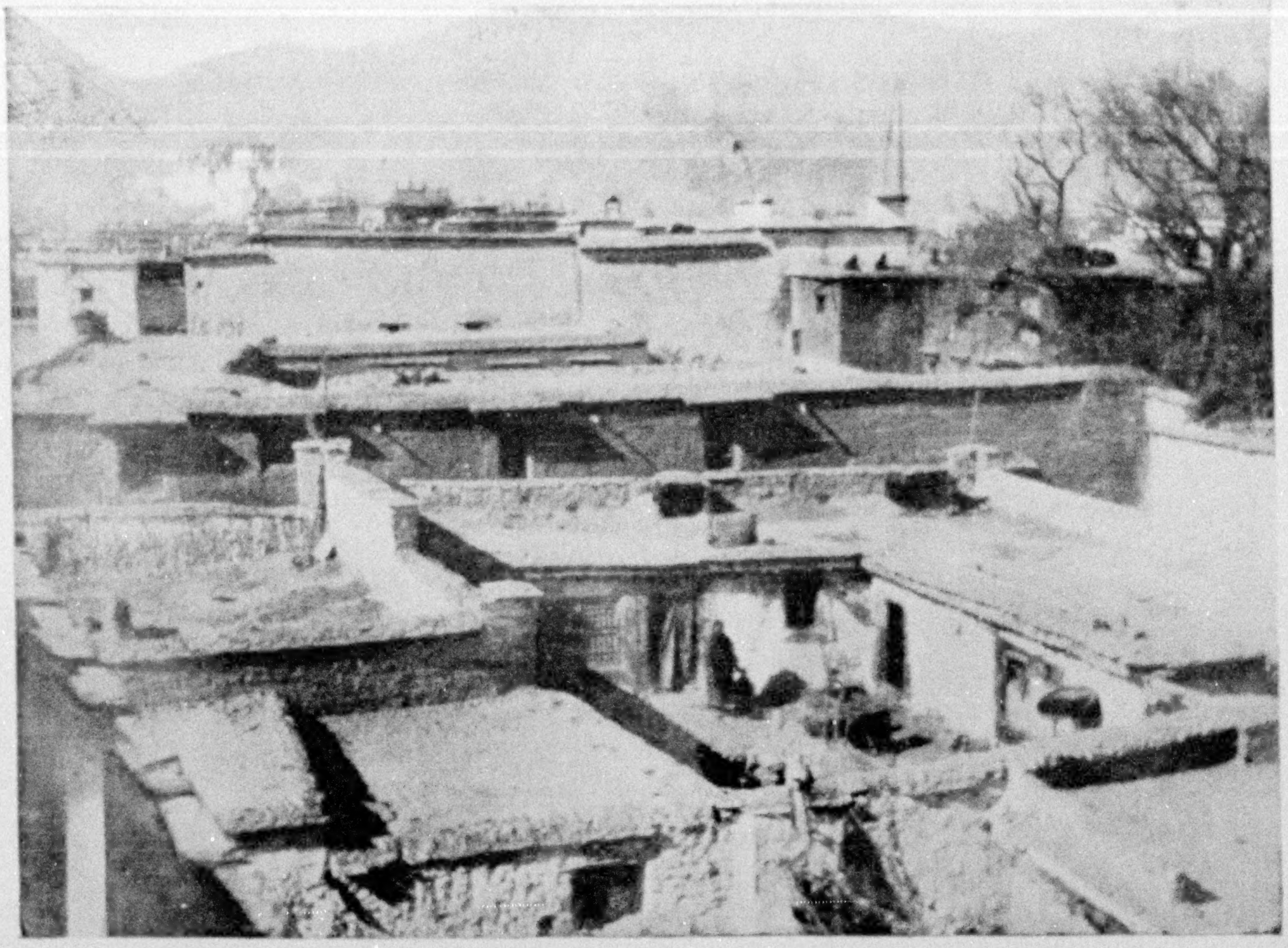
The most notable feature of this temple is an image of Buddha. It is 30 feet high. The entire body is gold-plated and inlaid with pearls, coral, turquoise, and other kinds of precious stones (see page 971). The design of this extraordinary work is so curious and elaborate that the like of it can scarcely be imagined. So difficult was the transportation of this idol that the natives claim it was moved to Tibet from China by the gods in a night.

A five-colored statue is set in the wall of one of the rooms. It is said to have been heaven born, not made by man.

Numerous rats of monstrous size are seen running through the halls or peeping from behind the images. Superstition leads the people to worship them as divine.

Various kinds of ancient arms are also found in the temple. The most interesting of all are two bronze drums of the Han dynasty and one big cannon of the T'ang dynasty, with five characters cast on it. These characters mean literally "Majesty of the Imperial Power extinguished the rebellion."

The so-called "Sanctuary" is in the very innermost part of the temple. The



TIBETAN HOUSES, SHOWING THE FLAT ROOFS

rules that govern this Lama "Holy of Holies" are strikingly like those established by God for the Israelites. A screen made of iron rings (see page 970) veils the sacred image from the common people.

Around the temple are markets and stores. The noise of all kinds of traffic continues through the day. Multitudes of people throng the temple from morning till night. Lamas go in and out to perform their daily duties, pilgrims make prostrations on the floor in worship, and hosts of beggars infest the holy place craving food and money. Such is the superstition of the ignorant, mingled with the suffering of the poor, in striking contrast with the riches of the institutions of the Lama religion.

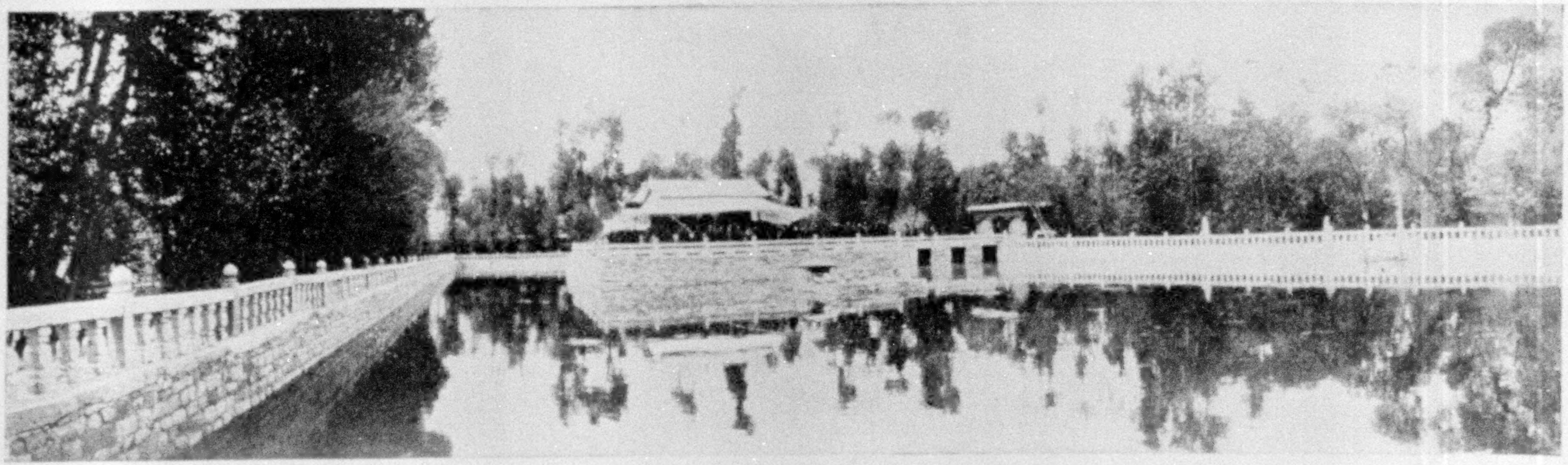
A great sacred conference is held annually in this temple from the second of the second month until the 22d, when 80,000 Lamas from all over the Lama Kingdom assemble daily for prayer, reading of their classics, and other religious observances.

On the outside are many tablets erected for the purpose of commemorating the military achievements of the Chinese generals who subdued the Tibetans. Among them two tablets are of great historic significance to the Chinese. The one on the right was erected in memory of the alliance between the second emperor of the T'ang dynasty and his nephew, the son of Princess Wen-cheng. The other one, in front, relates the history of founding hospitals and efforts made to stamp out an epidemic of smallpox, which had been harassing the whole country.

THE THREE GREAT MONASTERIES OF LHASA

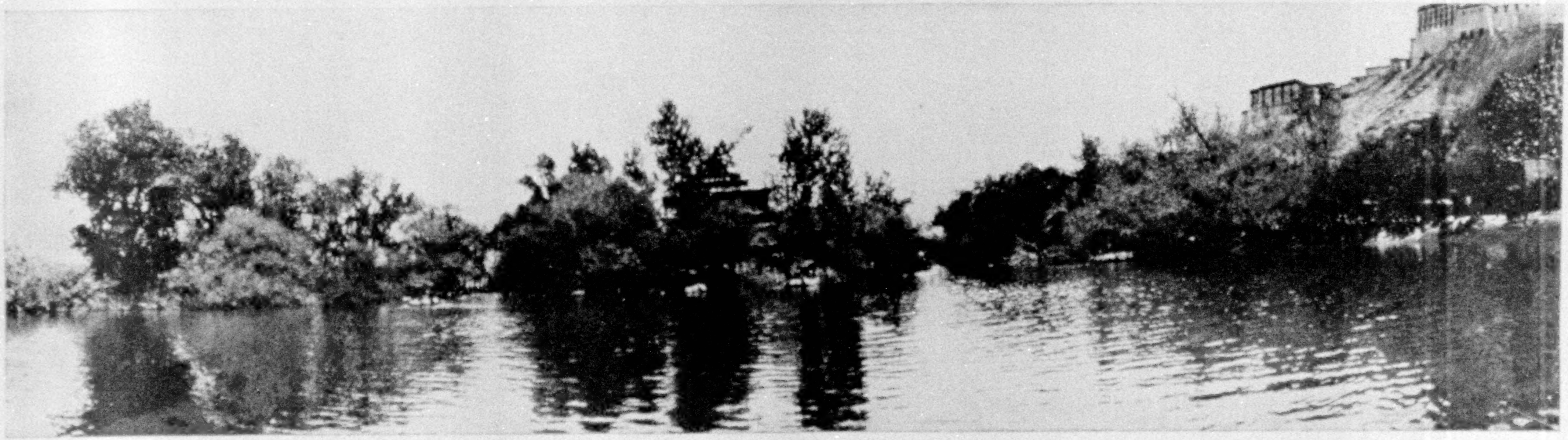
Seven miles to the west of Lhasa is the largest monastery in Tibet, called the Dupon Monastery. It is situated in a rocky ravine between high mountains (see page 960). Its size is so enormous that, looking from a distance, one may easily mistake it for a large city. Amid the numerous buildings is a beautiful

XUM



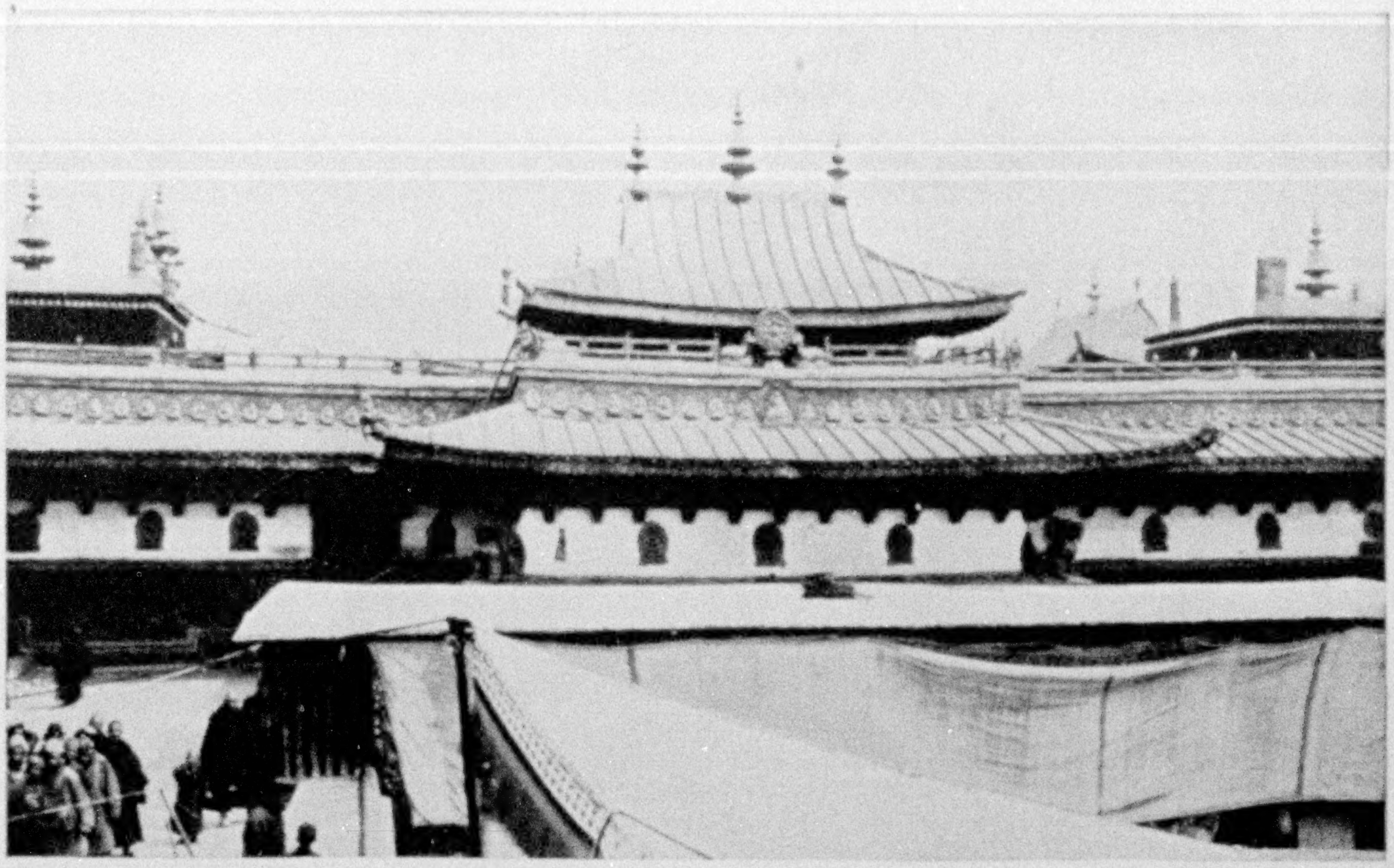
"NOR-BU-LINGA," THE DALAI LAMA'S GARDEN, WEST OF MEDICAL HILL, OUTSIDE THE CITY

An artificial lake of fresh running water occupies the center. On the northern side of the lake is a golden-roofed pavilion. The goldfish swimming in the lake, the snowy ducks floating on the water, the white stone railings, and the blooming trees make an ideal place for the "Living Buddha's" hours of rest and leisure. Since the common people are forbidden to enter, few people realize that there exists in Tibet such an enchanting fairyland.



LAKELET BEHIND POTALA HILL

The water is exceedingly clear, surrounded with green trees. There is a small island in the lake, and in summer people come to enjoy pleasure outings on the lake in yak-hide boats



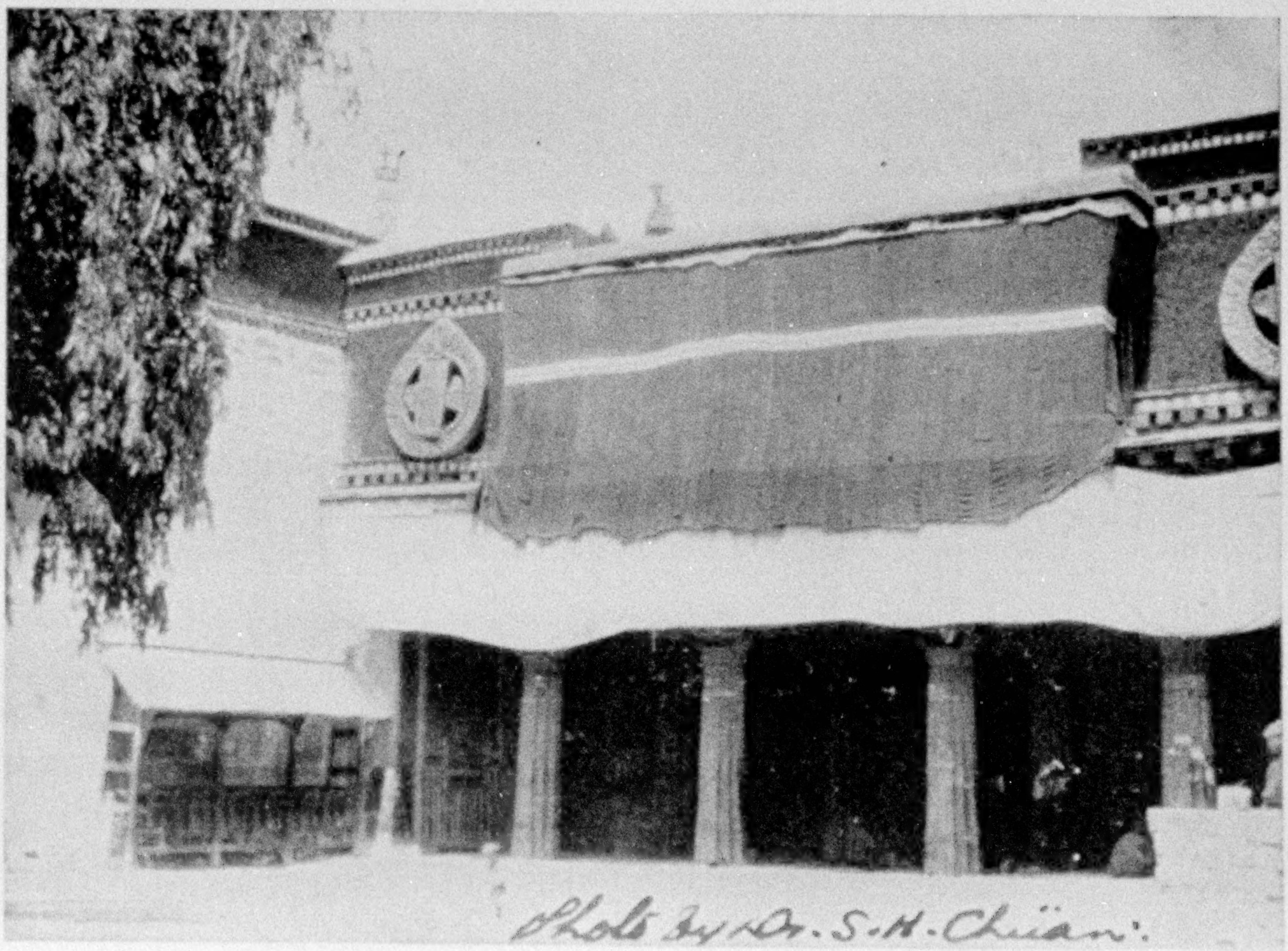


Photo by Dr. S. H. Chüan.

THE GOLDEN ROOFS OF THE GREAT TEMPLE OF LHASA (SEE TEXT, PAGES 965 AND 966)

THE ENTRANCE OF THE GREAT TEMPLE OF LHASA, WHERE AT THE ANNUAL SACRED CONFERENCE 80,000 LAMAS ASSEMBLE FOR DAILY PRAYER

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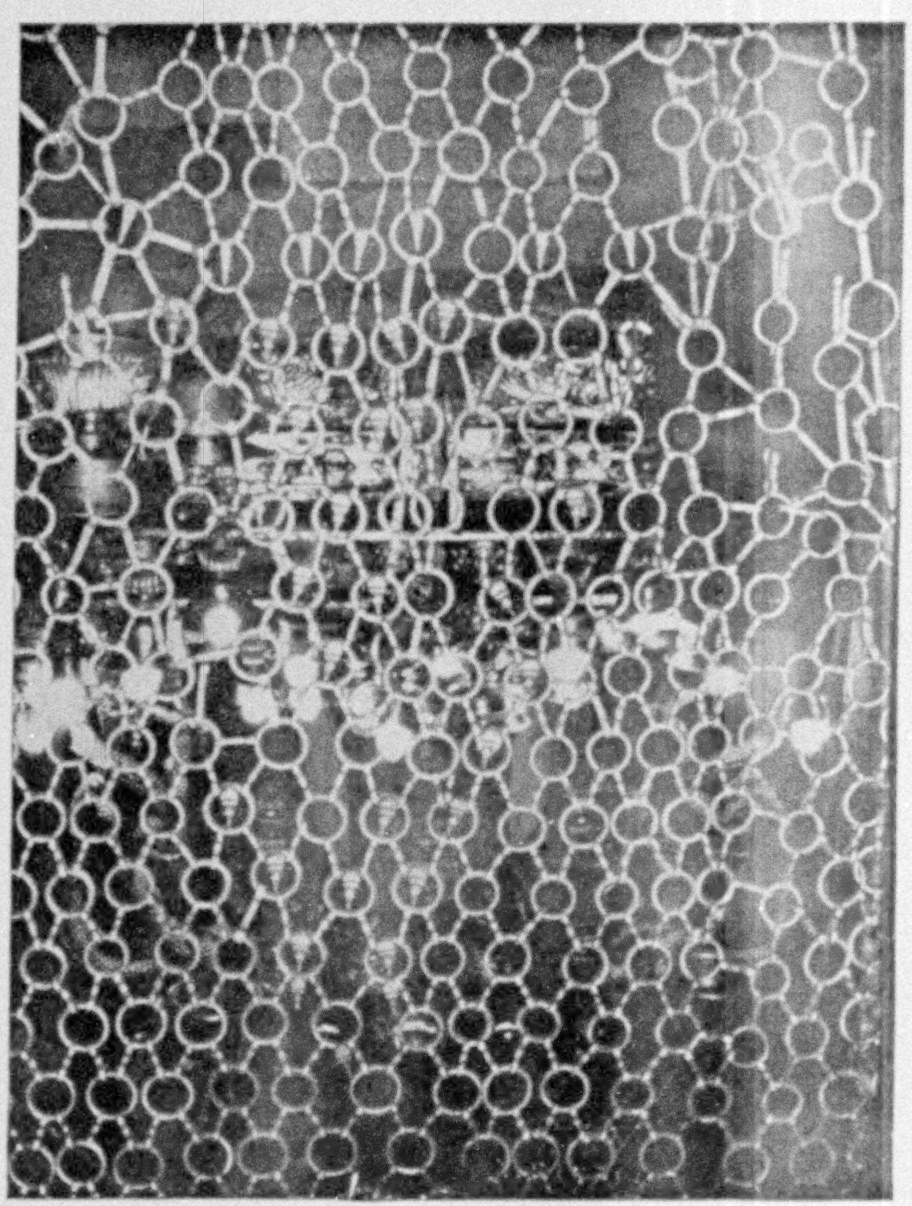
THE ABBOT OF THE GREAT TEMPLE OF LHASA, WHERE 80,000 LAMAS COME FOR DAILY PRAYER ON THE OCCASION OF THE YEARLY CONFERENCE, WHICH LASTS FOR THREE WEEKS.



"A SCREEN MADE OF IRON RINGS VEILS THE SACRED IMAGE FROM THE COMMON PEOPLE" (SEE TEXT, PAGE 967)

THE FAMOUS IMAGE OF BUDDHA IN THE GREAT TEMPLE OF LHASA (SEE TEXT, P. 966)

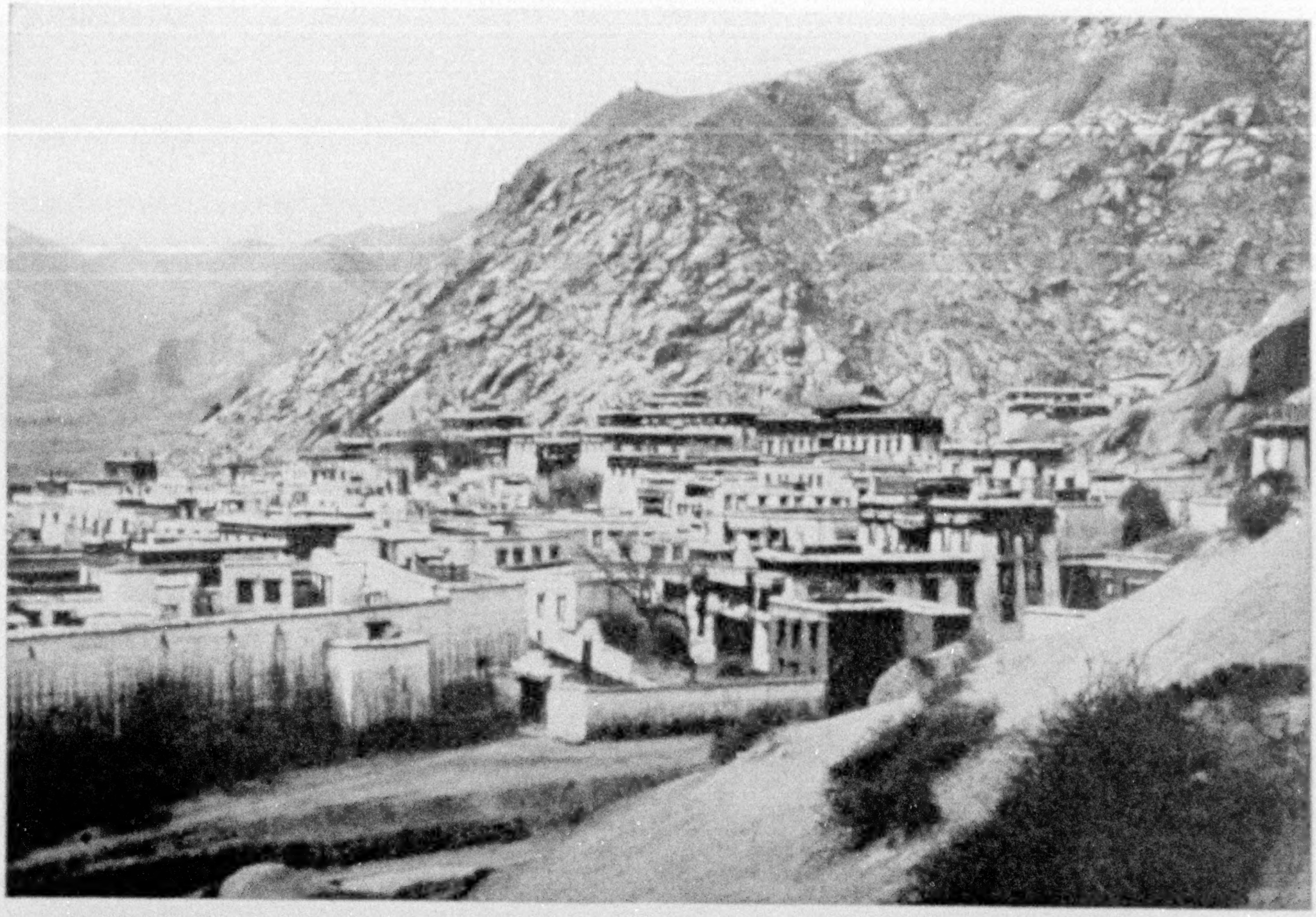
garden, which serves as a summer resort for the Dalai Lama, who goes there to discourse upon the Lama classics every summer.

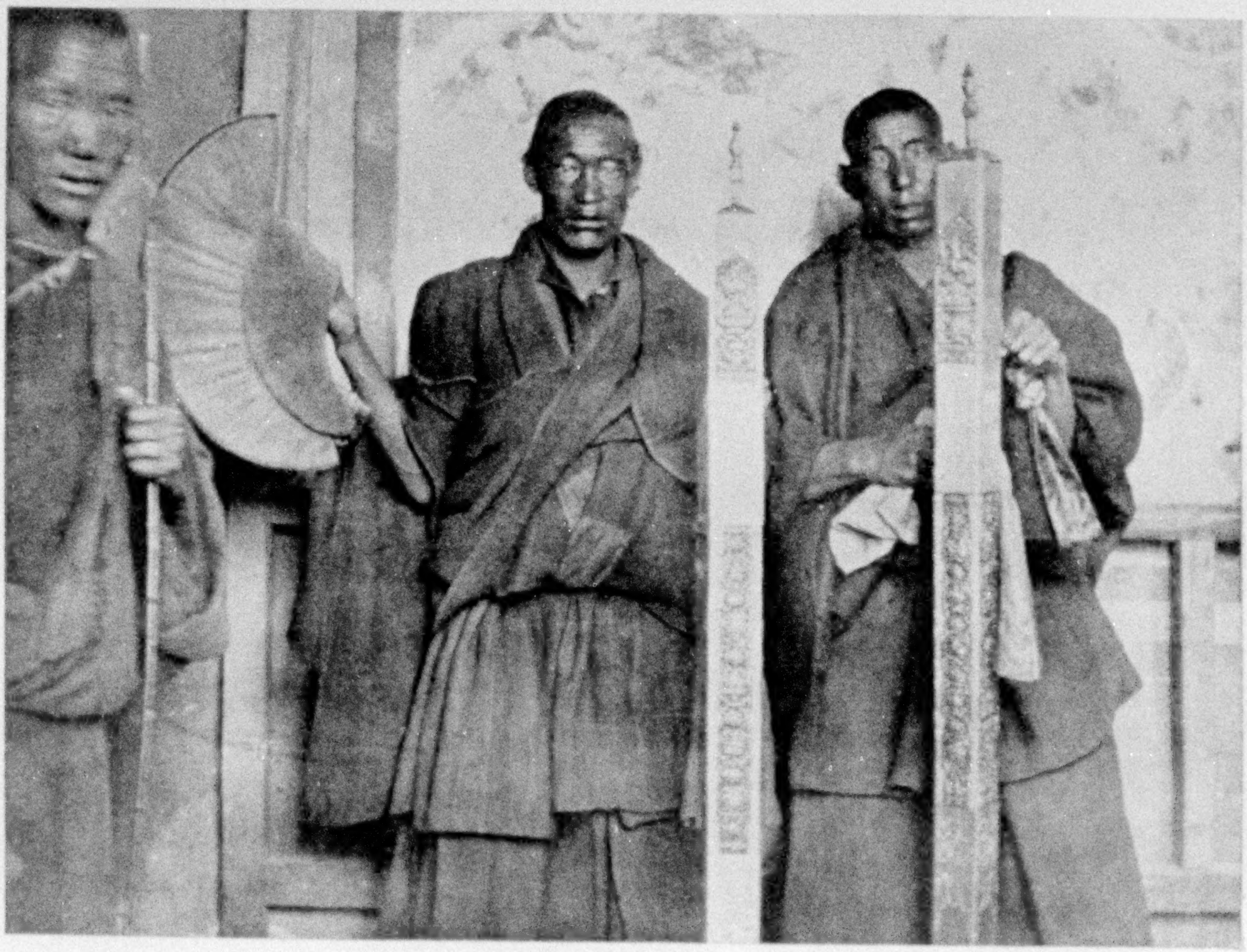
Seventy-five hundred Lamas live in this monastery, which has room enough to accommodate any of the largest universities in the United States.

There is a Buddha here who is reported to have come out from the water four centuries ago to deliver the people from floods that used to ravage the country.

No stronger evidence of the superstitious mind of the natives can be given than the idea which they have regarding the clay body of the seventh Dalai Lama, which is in this monastery. Tibetans sincerely believe that it is the living body of the seventh Dalai Lama. It is said that the bosom of the body is still warm, though the seventh Dalai Lama died several decades ago. The truth as to this tradition cannot be ascertained, since no one is allowed to touch the body.

There are many large images. Of these the largest in size is called "Milê," and is gold-plated and adorned with pearls, gems, and numberless precious stones. Here are also two fasces (see

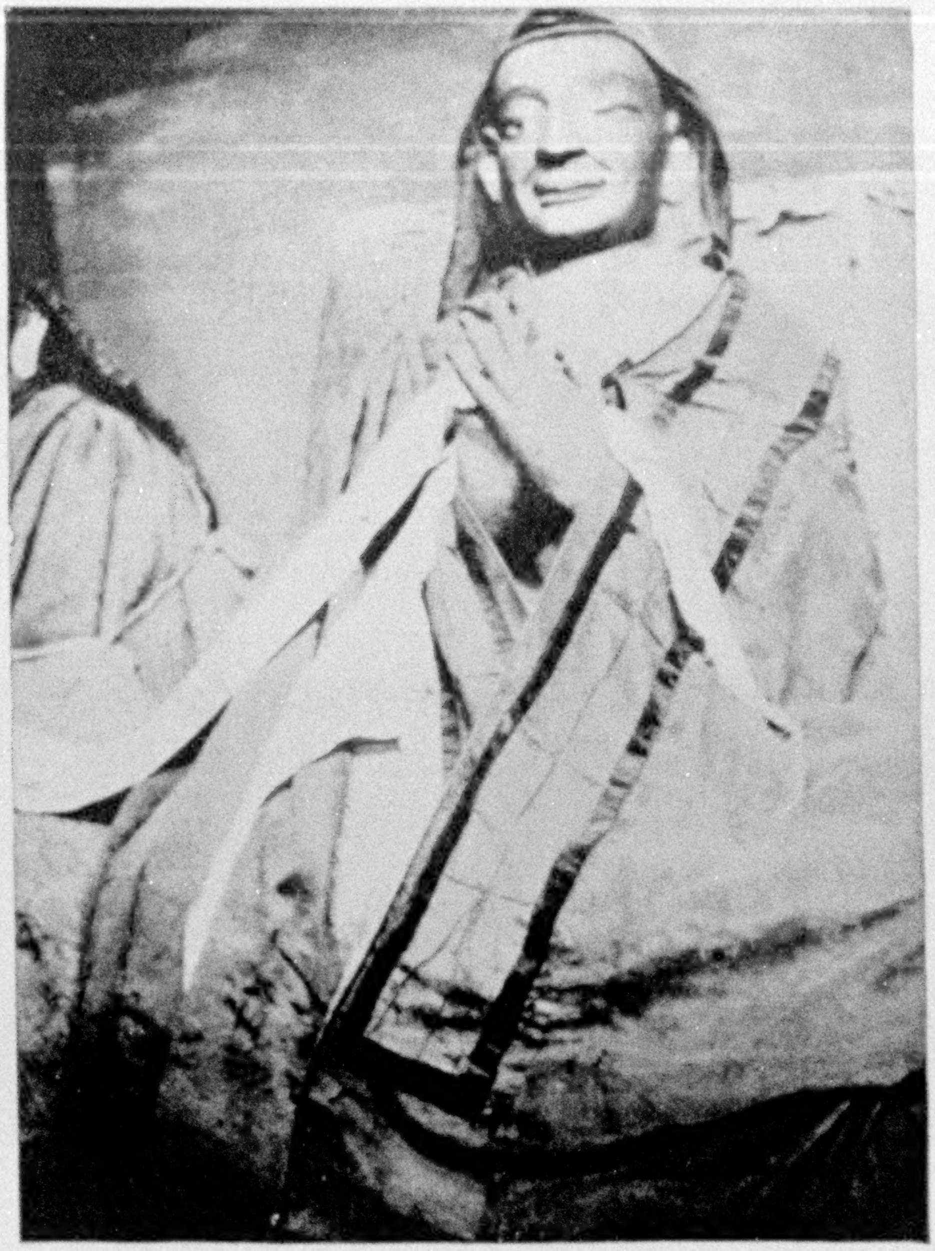




THE SERA MONASTERY, WHICH ACCOMMODATES 5,500 LAMAS, AND IS THE SECOND LARGEST MONASTERY IN LHASA

LAMAS HOLDING THE TWO FASCES AWARDED BY THE CHINESE EMPEROR K'ANG-HSI TO RESTRAIN AND PUNISH THE DISOBEDIENT LAMAS (SEE TEXT, PAGE 973)

The Lama on the left holds a yellow cap



THE IMAGE OF TZUNG-KA-BA

"Unlike other Buddhist images, which usually have a stiff and wooden expression, Tzung-ka-ba is represented by an image having a face like that of a human being" (see text below).

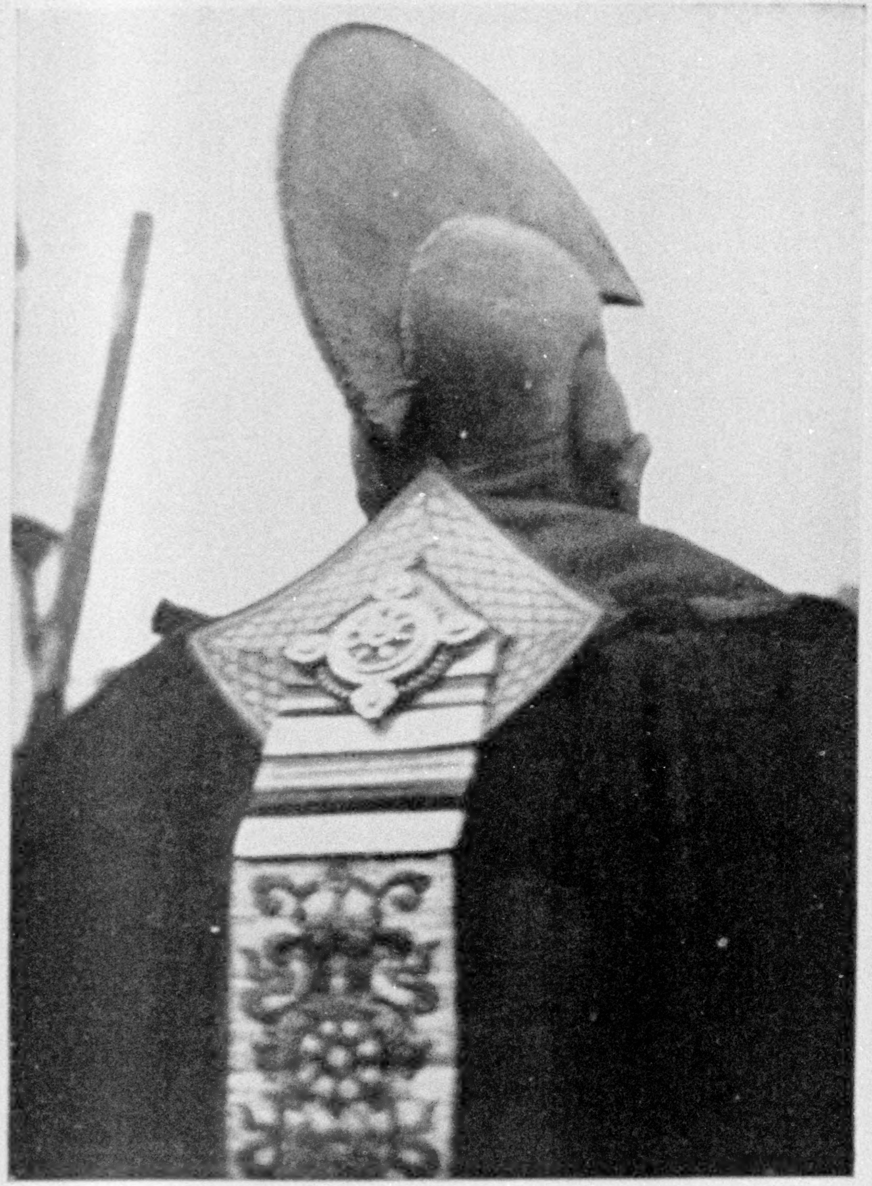
page 972), awarded by the former emperor, K'ang-hsi, to restrain and punish the disobedient Lamas.

In front of Dupon is the Great Oracle of State (see page 960), where inspired Lamas give answers to inquiries made by those who are eager to know their fortunes or outcome of various affairs. It has even greater influence and authority than the oracle at Delphi, since here questions are asked and answers given in regard to governmental policy as well as private matters. Its ruling divinity has very wretched features. He is supposed to have sprung from a tree. The shingles of the roofs are made of arrows collected after different battles.

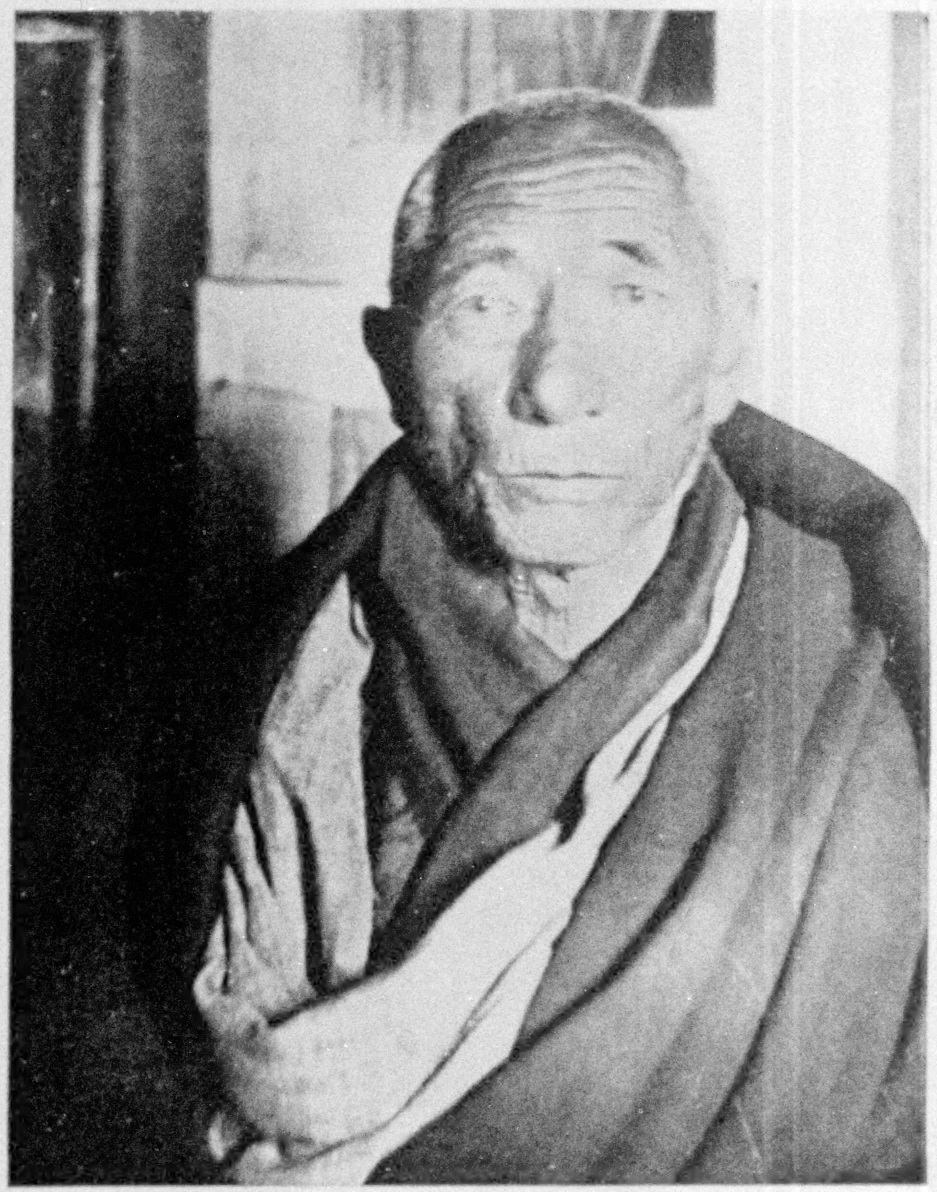
THE SERA MONASTERY

The Sera, or the "Golden Hill, Monastery (see page 972) is situated along the hillside north of the city. It is next to the Dupon Monastery in size, with room for 5,500 Lamas.

The worship of Tzung-ka-ba, the founder of the Yellow-cap sect of Lamaism, has its seat in this monastery. Unlike other Buddhist images, which usually have a stiff and wooden expression, Tzung-ka-ba is represented by an image having a face like that of a human being (see above) and holding a scepter which is said to have come down from heaven.

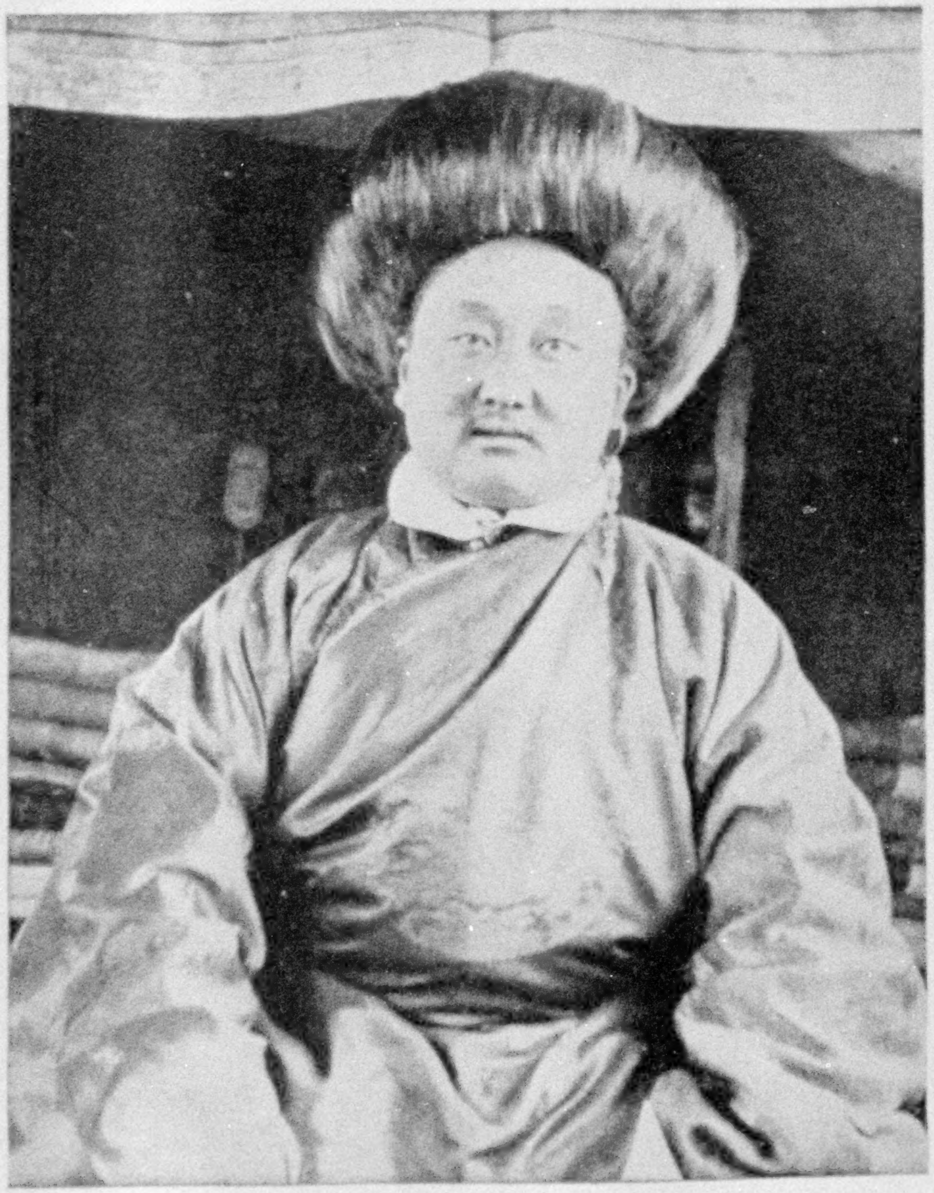


BACK VIEW OF A LAMA, SHOWING THE YELLOW CAP AND THE ORNAMENT ON THE BACK



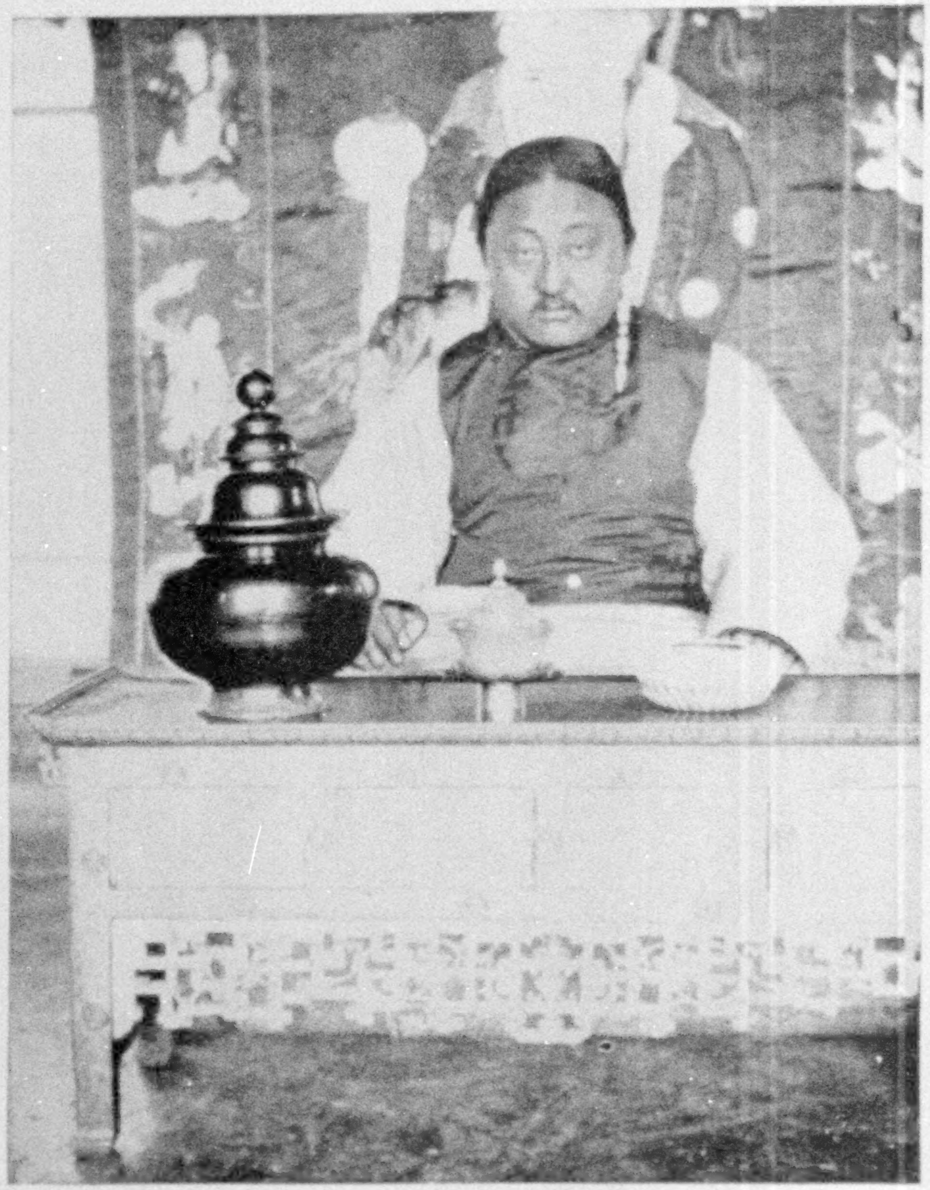
TI-RIMBOCHE, REGENT OF TIBET

The most learned man in Tibet is chosen Regent (see text, page 979)



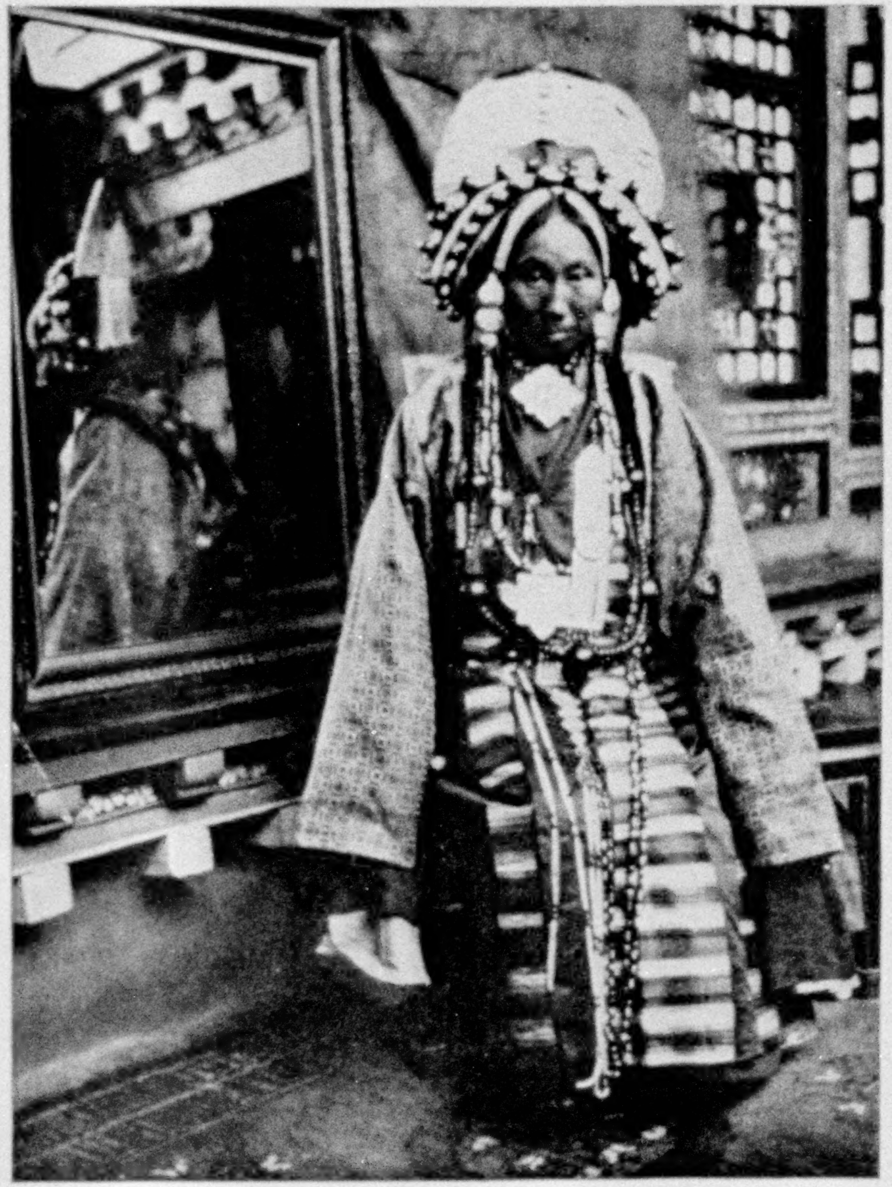
THE DUKE OF LHASA, BROTHER OF THE DALAI LAMA

He wears a black fur hat and yellow satin topped fur robe, and has a long ear-ring of turquoise in his left ear



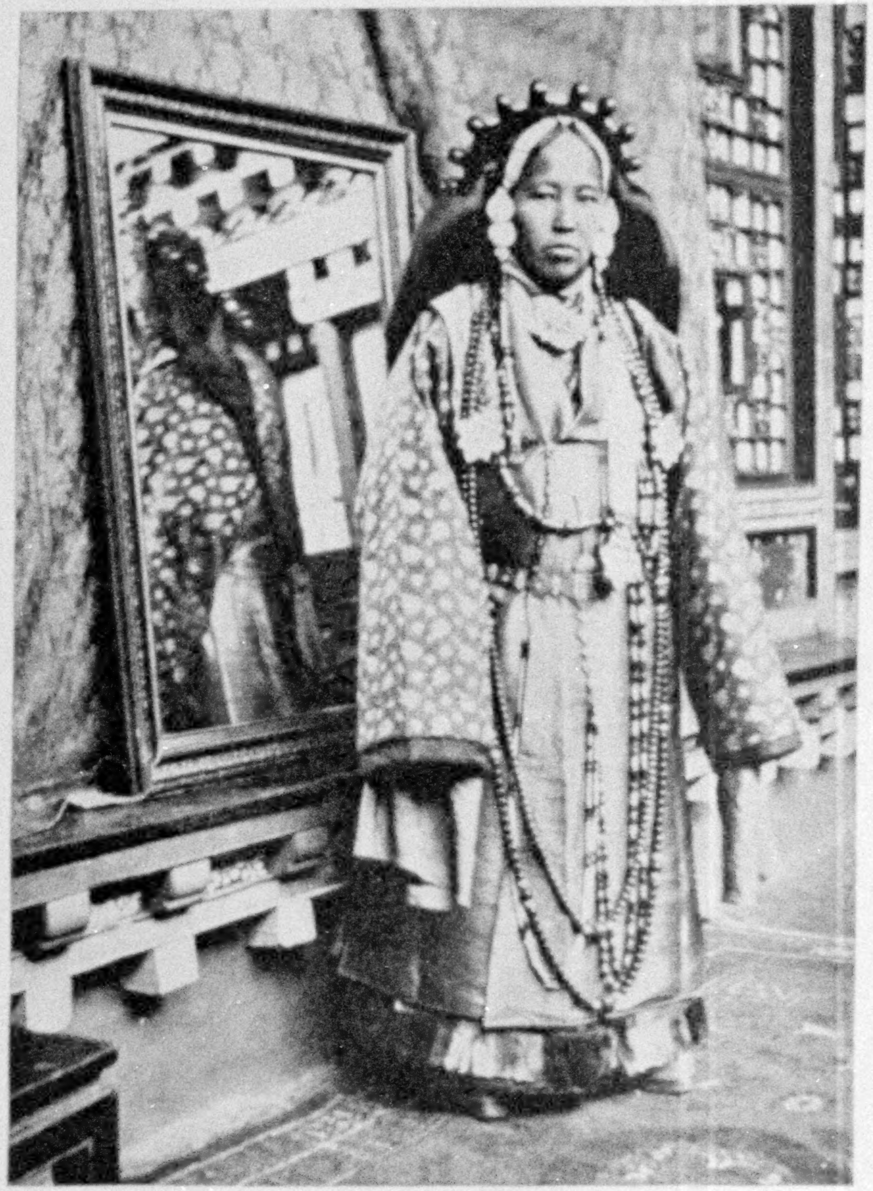
THE DUKE OF LHASA ENJOYING HIS TEA

Notice the tea-pot on his right, tea-cup in front, and spittoon on the left. Tibetans are the most inveterate tea-drinkers in the world. The peculiarity of their tea is that it is a mixture of tea, butter, salt, and sometimes barley flour, boiled together.



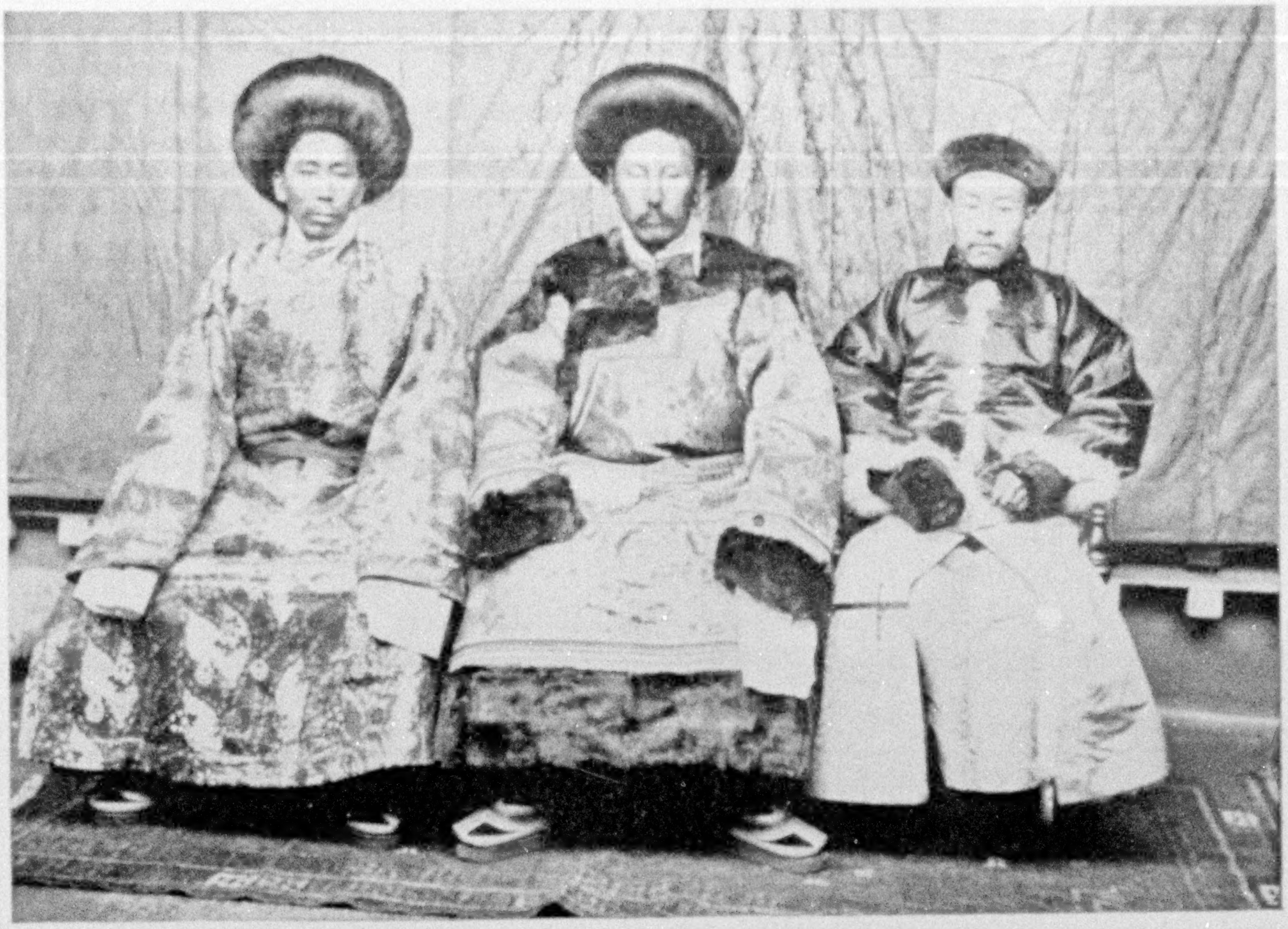
WIFE OF DAIBEN (THE GENERAL)

Her adornment is about the same as that of the Prime Minister's wife. In addition, however, she wears the large headgear of priceless pearls, shown in the picture.



THE PRIME MINISTER'S WIFE IN HER COURT GARMENT

A ring decorated with large corals may be seen around her head. Her hair is parted in the middle and hangs loose on her shoulders. On her forehead is a bandeau of pearls. She wears two large ear-rings inlaid with corals, pearls, and precious stones. A pendant and a charm-box are on her breast, all made of gold and inlaid with pearls and precious stones. Long necklaces of the same materials hang down to her feet. It is said that the ornaments she has on her person cost about twenty-five thousand "Tangka" ($3,000). A Tang-ka is a Tibetan silver coin amounting to 12 cents.



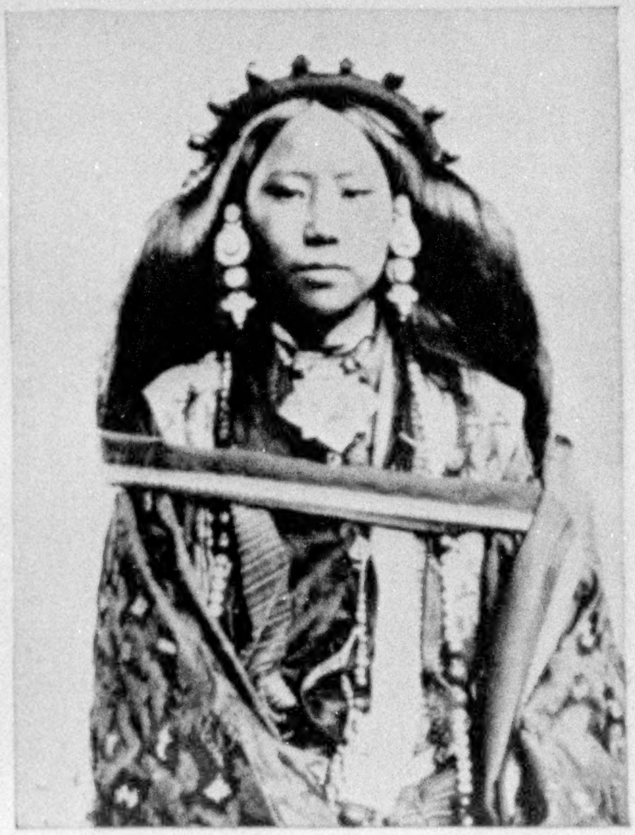
CHIEF KALUN AND DAIBEN IN COURT ROBES MADE OF BEAUTIFULLY COLORED EMBROIDERY

Mongolian nobles often make long journeys to this place for worship, and not a few of them have become Lamas during their visits. The son of the Mongolian Prince Kung has already been transformed into a "Living Buddha." From his forehead grows the much-coveted "Wonder Pearl," a pearl of the size of a millet grain, which constitutes the most vital part of Buddhism. People travel from remote parts of the Buddhist world to Lhasa in order to get this pearl, which they believe to be omnipotent.

THE GANDAN MONASTERY

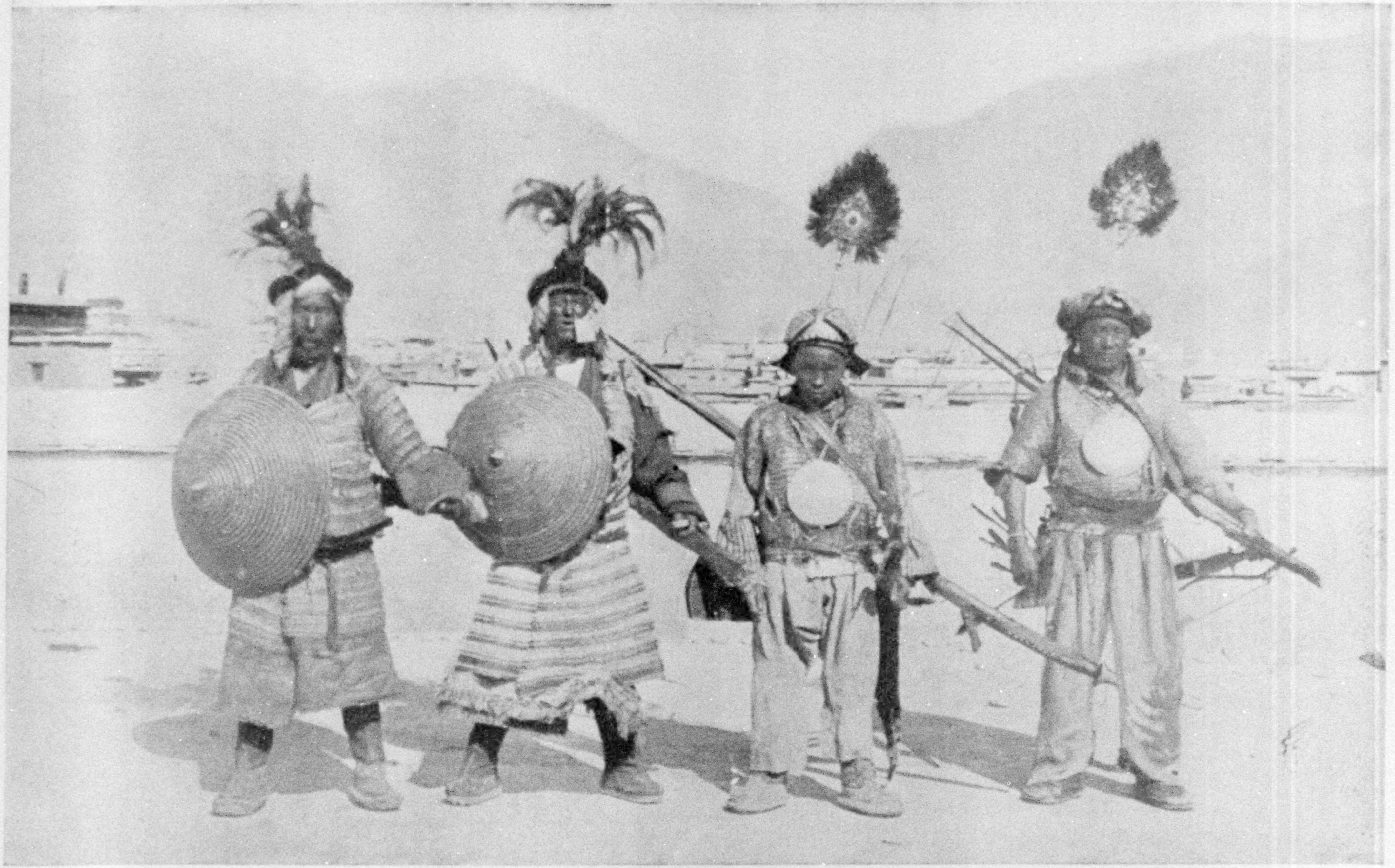
The third monastery in size and importance is the Gandan Monastery, to the east of the city. Tzung-ka-ba is said to have become a "Living Buddha" in this monastery. About 2,000 Lamas live and study here.

The power and influence of these three great monasteries can hardly be overestimated. With a total number of 15,000 Lamas, they are strong enough to control almost anything. The leading Lamas are often found engaging in poli-



A BRIDE

She is the daughter-in-law of Chief Kalun. The band around her breast is the sign of a bride.



TIBETAN SOLDIERS IN ARMS

Matchlocks, bows, and arrows are their weapons. Note shirts of chain worn by the two men on the right

A TROOP OF TIBETAN SOLDIERS

tics or meddling in governmental affairs. Sometimes they become so strong that even the Dalai Lama and the Ambans seem to be unable to control them.

Lamaism is the state religion of Tibet and its power in the Hermit Country is tremendous. Religion dominates every phase of life. The propagation and development of Lamaism are accomplished by very effective methods. For instance, in a family of four sons, at least two, generally three, of them must be Lamas. Property and family prestige also naturally go with the Lamas to the monastery in which they are inmates. In this way not only is the monastery growing richer every year, but its authority, too, is constantly increasing.

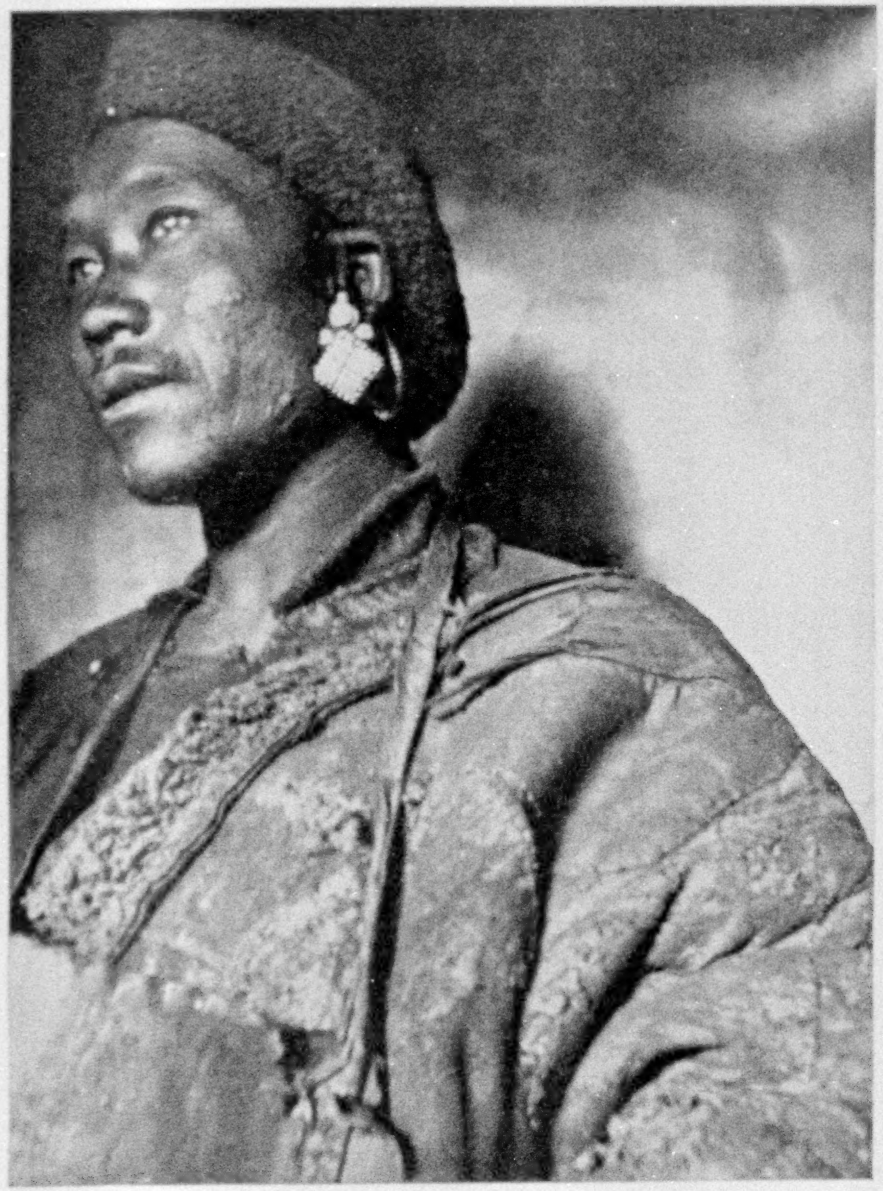
Keeping the common people, or laymen, in ignorance is another means of maintaining the power of the Lamas. Nearly all the laymen are illiterate. Lamas are the only people who are taught to read and write. That ignorance breeds superstition is a well-known axiom. Tibetans at the present day, owing to their ignorance, are fast cob-webbed by numberless superstitions which have been accumulated for centuries. There is scarcely a single action or object that they do not believe to be controlled either by gods or by evil spirits.

THE GOVERNMENT OF TIBET

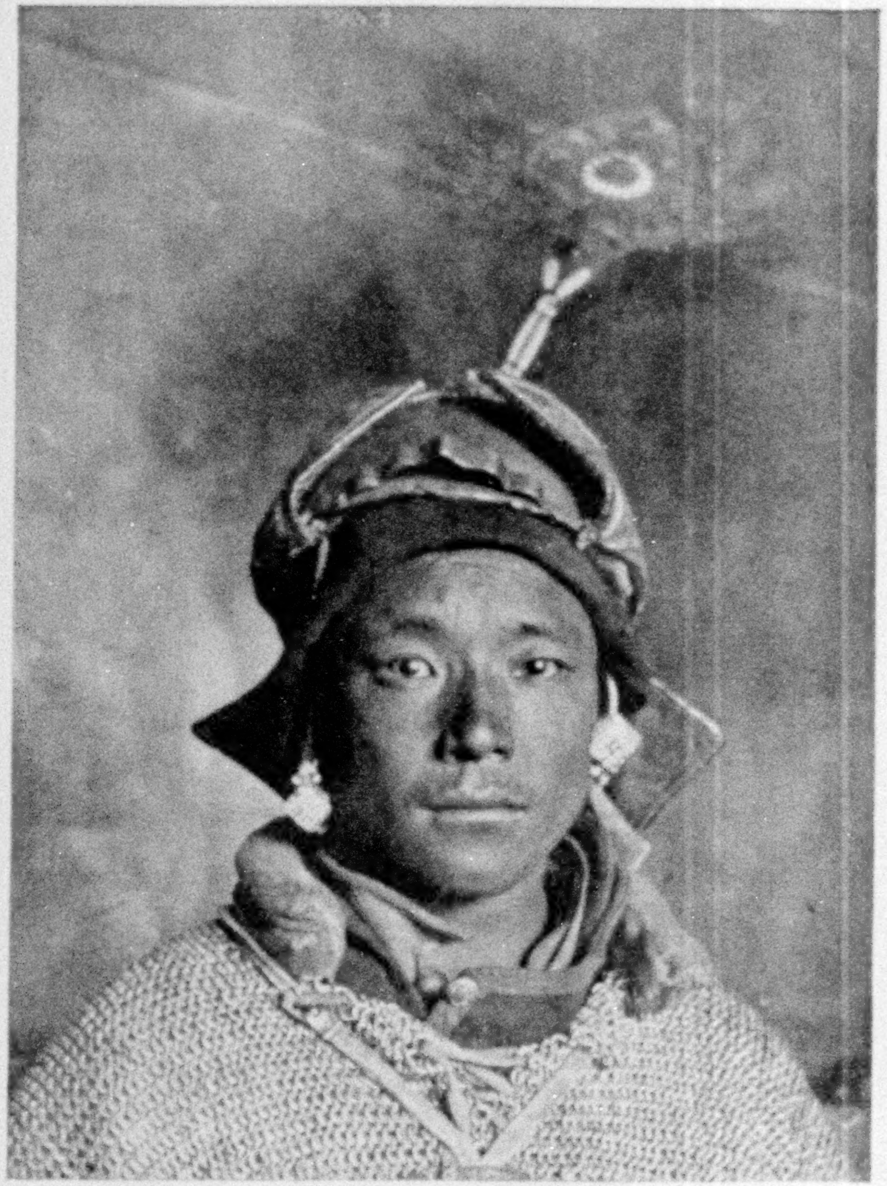
Tibet is governed by the Dalai Lama as politico-religious head and two "Ambans" as the political dictators. The Ambans are appointed by the Chinese Emperor every four years. All governmental affairs have to undergo examinations by the two Ambans, and all governmental policy must be sanctioned by them before it can be put into operation. Literally, the Dalai Lama is under the authority of the two Ambans, but being supposed to be the incarnation of the principal Pope-god Lobzong, he sometimes can issue commands which are beyond the control of the two Ambans.

Below the Dalai Lama is the Regent (see page 974), who must be the most learned Lama in the whole country. Next in rank are the four Ministers of State. One of these must be a Lama, while the other three are laymen. The position of Prime Minister is held by the one of the four who has been a minister for the longest term.

Other officers are two Judges ("Miben"), who are in Lhasa; a treasurer ("Changtzo"); there is also a "Daiben" (General) and "Ruben," "Giaben," "Dingben," and "Chuben" (officers ruling 250, 125, 25, and 10 men respectively).

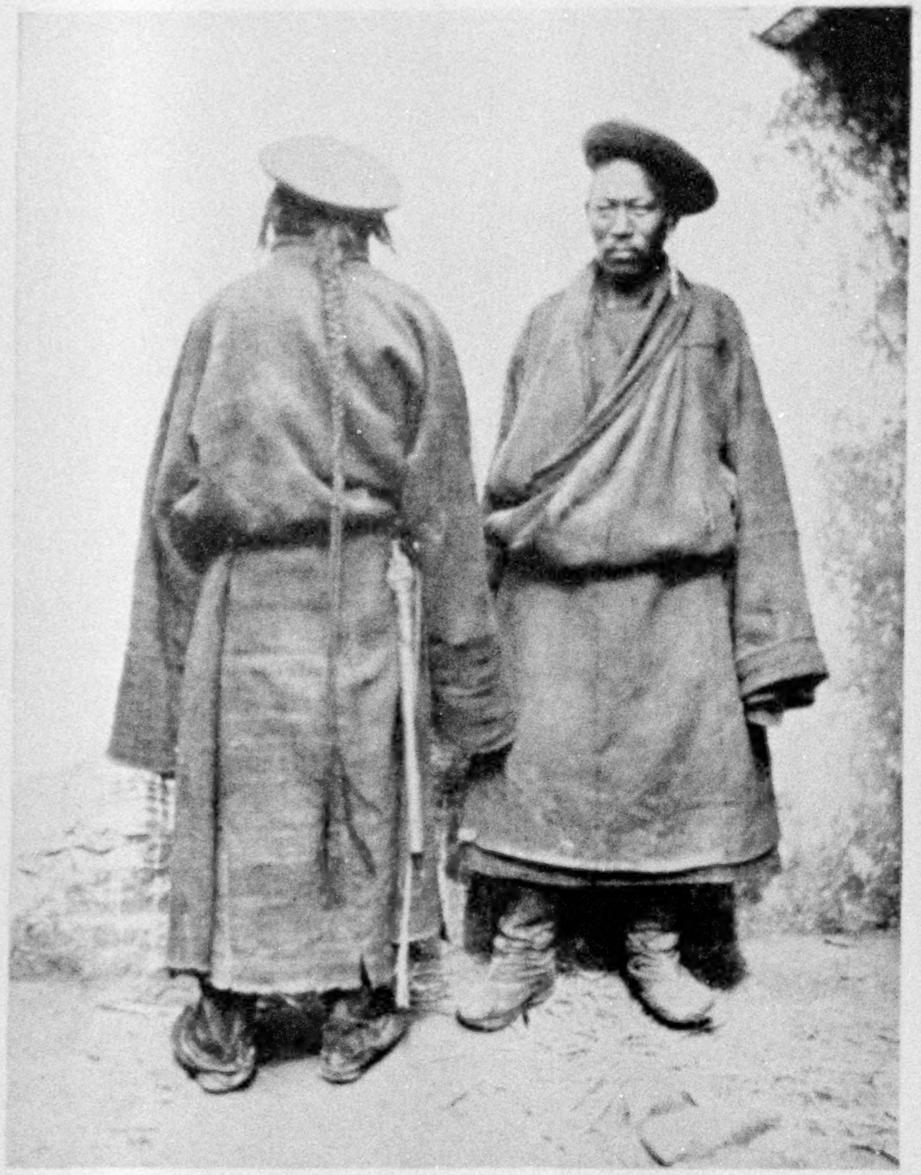


A COMMON TIBETAN IN CLOTHES MADE OF YAK-HIDE

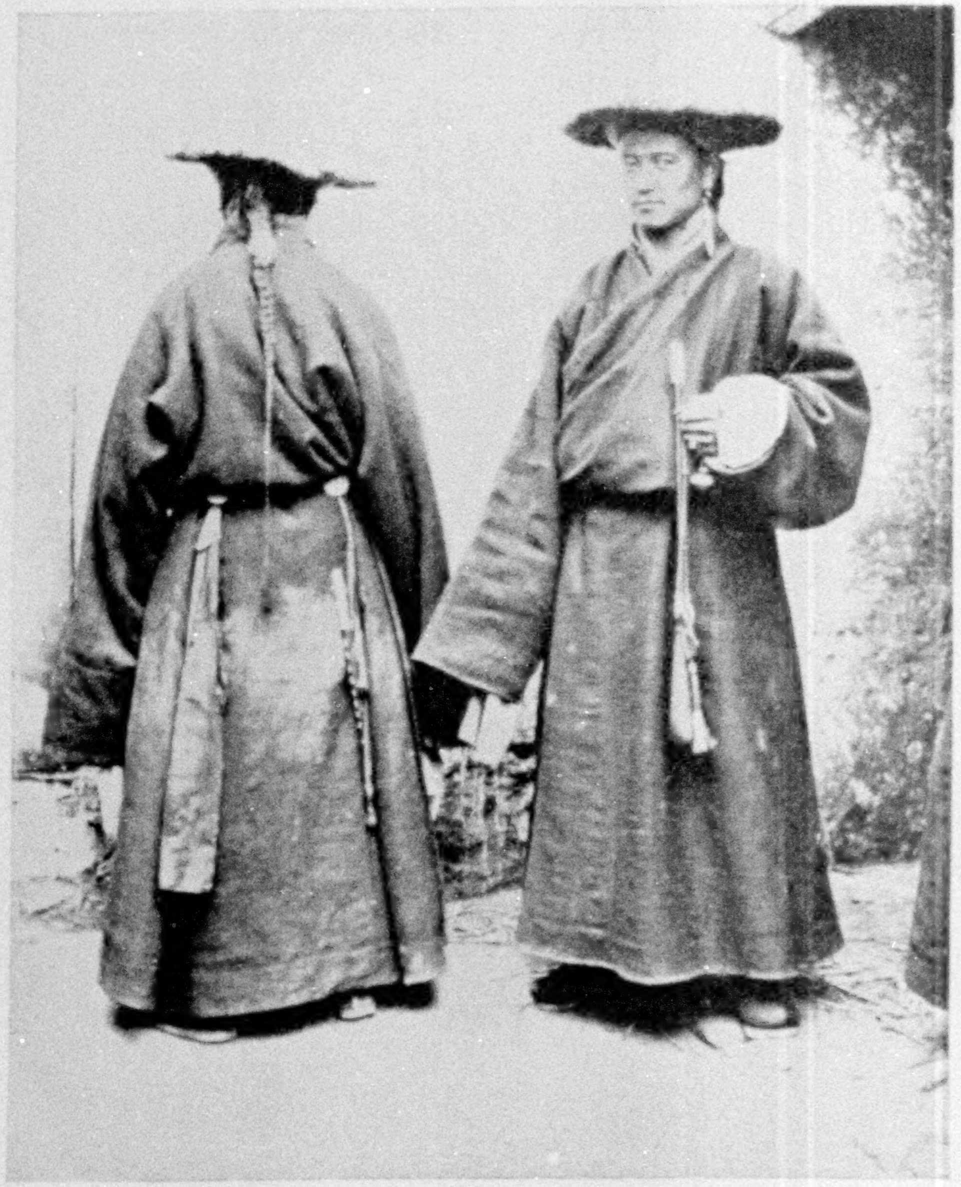


A TIBETAN SOLDIER IN CHAIN ARMOR, AND HELMET WITH PEACOCK FEATHER. HE ALSO WEARS AN EAR-RING.

XUM

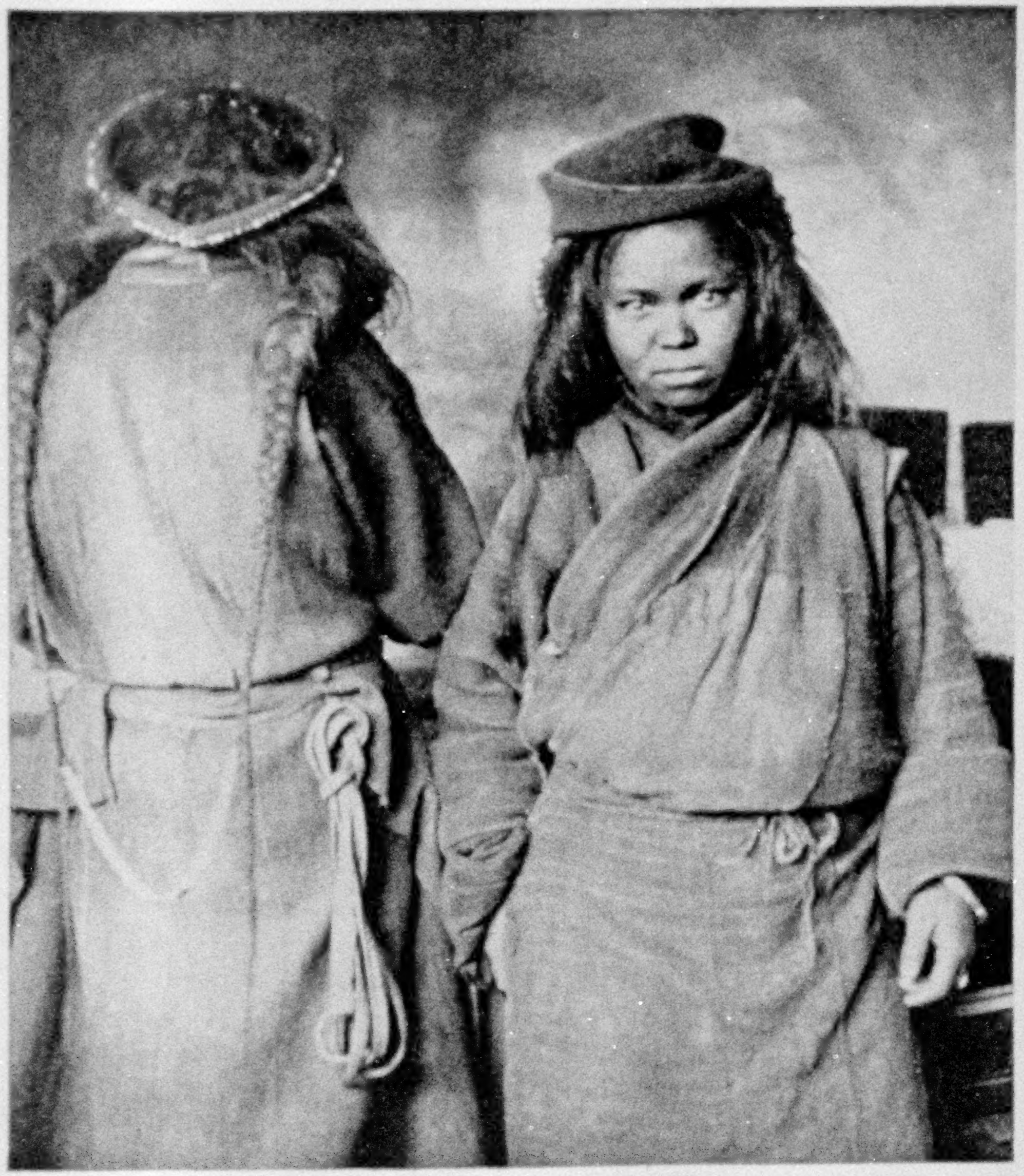


THE SHERIFF, WEARING A YELLOW HAT AND EAR-RINGS, WITH A WHIP HANGING AT HIS BACK



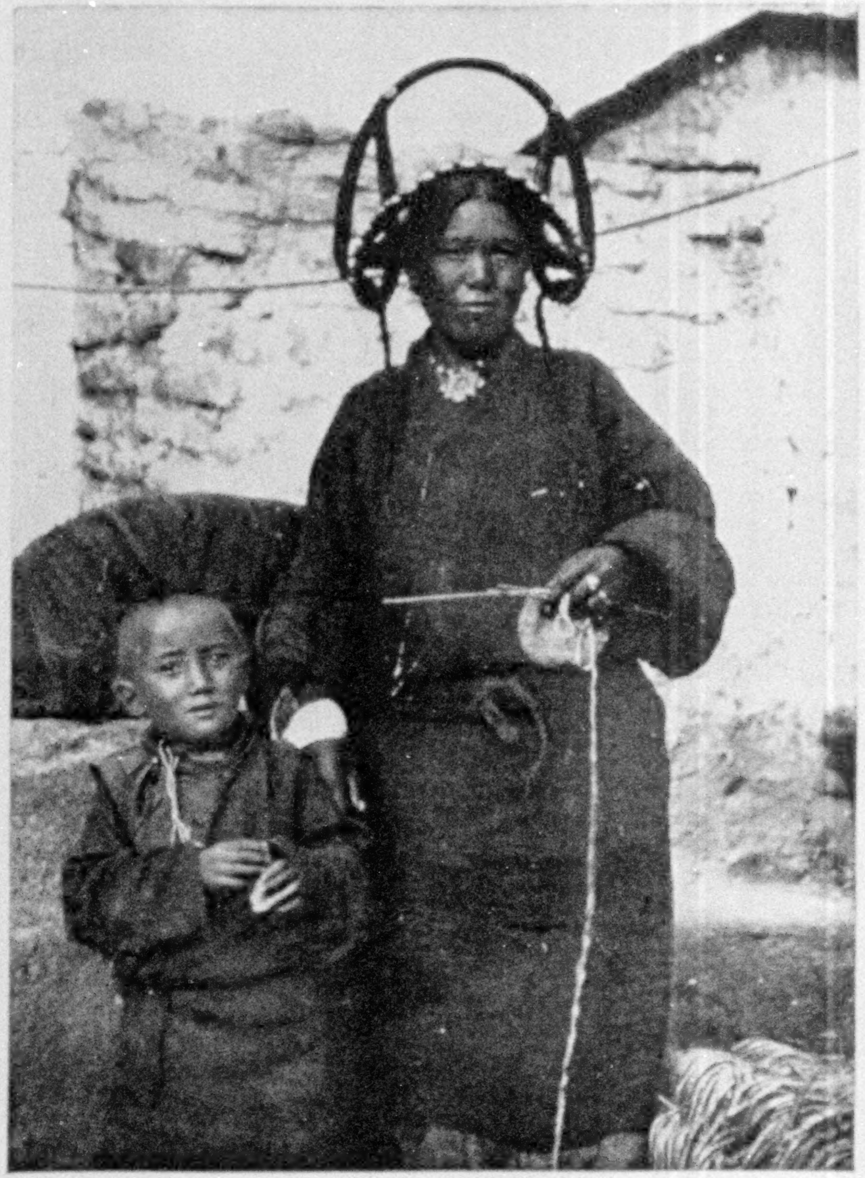
FRONT AND BACK VIEWS OF OFFICIAL ATTENDANTS

The flat hats are made of red wool. They also wear queues and ear-rings



FRONT AND BACK VIEWS OF POOR TIBETAN GIRLS

Notice their head bands and braids of hair



A TIBETAN WOMAN WEARING A SHELL BRACELET ON HER RIGHT WRIST

Since there is no sea in Tibet, all things from the sea are expensive curios. The enchanting "sound of the sea," caused by placing a shell close to the ear, makes the Tibetans believe that the shell has power to protect them. The woman is holding a crochet needle, and wool yarn is in her left hand.

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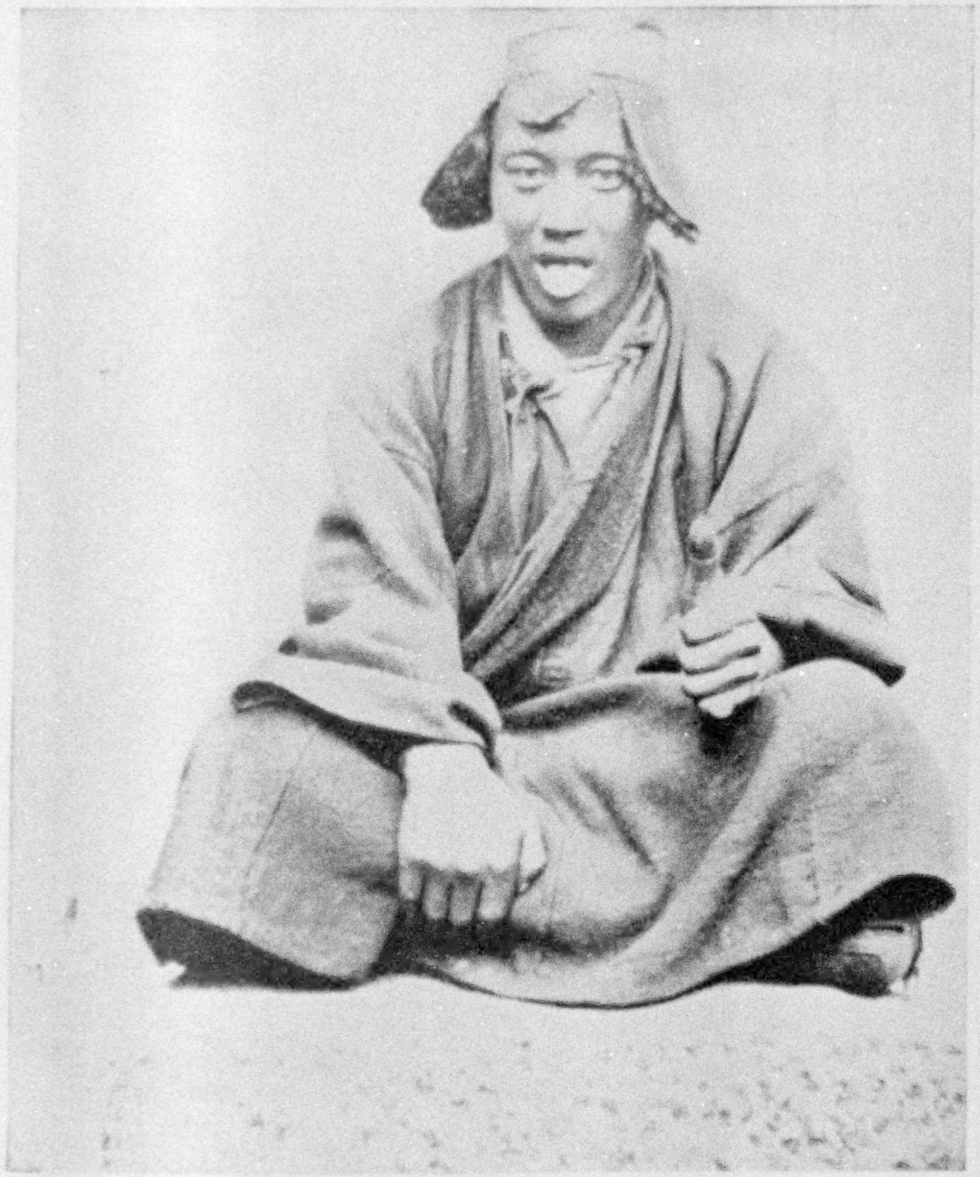
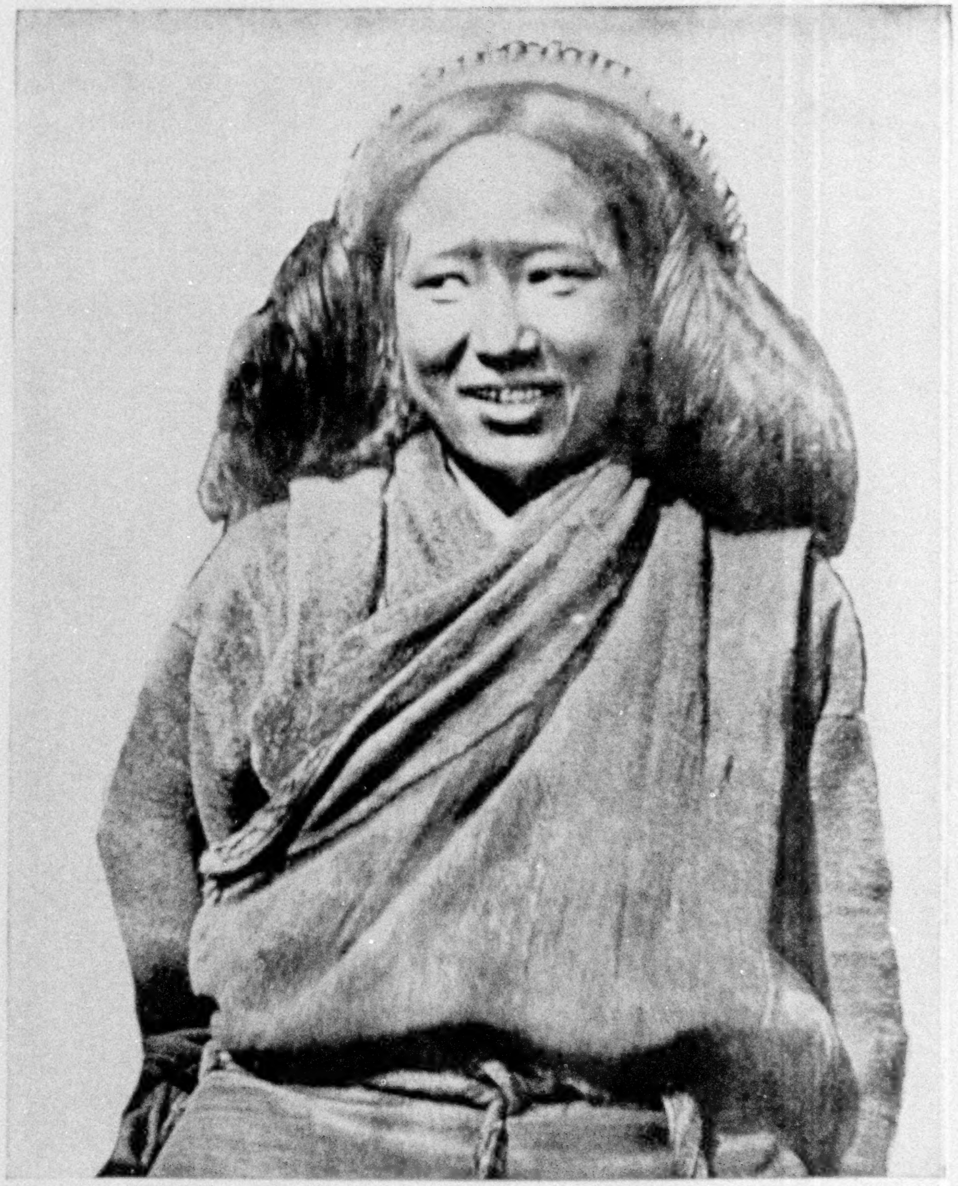


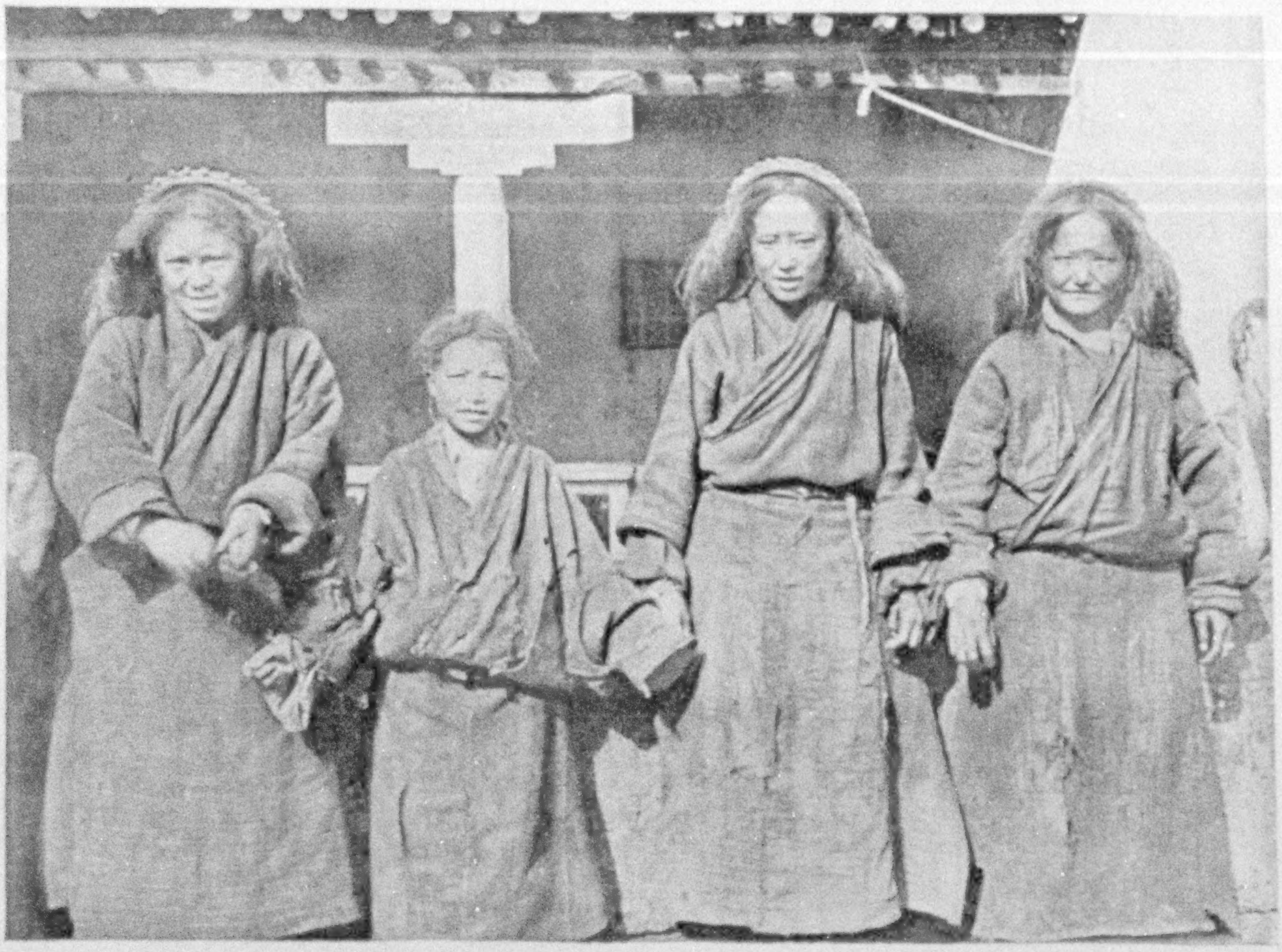
A TIBETAN SALUTING

Tibetans salute their superior by showing their tongues and putting out the thumb of one or the thumbs of both hands. They also take off their hat and make a deep bow.



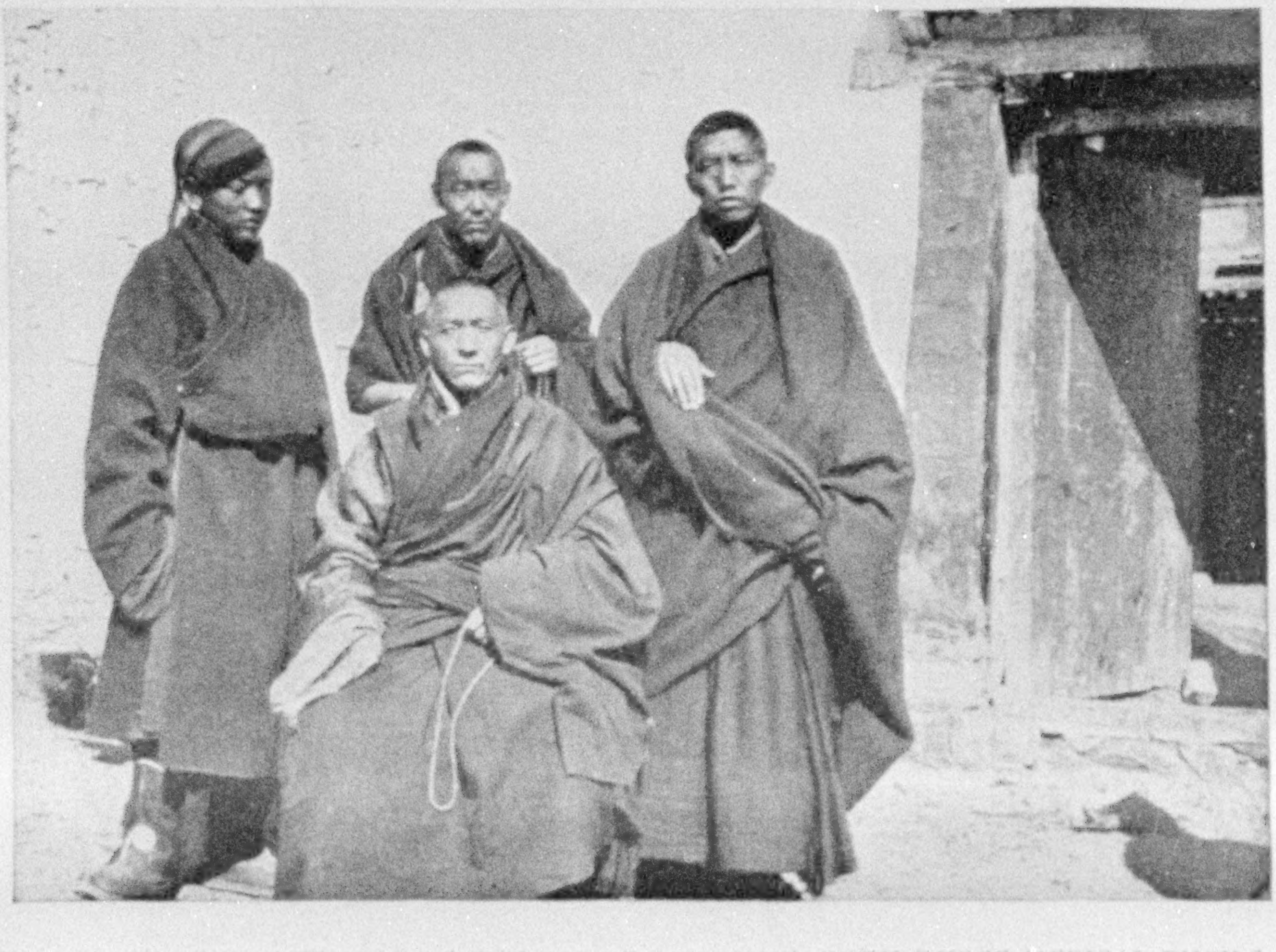
ORDINARY TIBETAN GIRL

She wears a head band with coral and turquoise of moderate cost



FOUR MASONS

In Tibet the work of carpenters and masons is done by women. Women transact also a large part of the business and perform much toil and drudgery of various kinds. Two-thirds of the Tibetan men are Lamas. As a rule the men are immoral and very lazy.



THE ABBOT OF THE TEMPLE OF THE GOD OF MEDICINE, WITH THREE MEDICAL PUPILS

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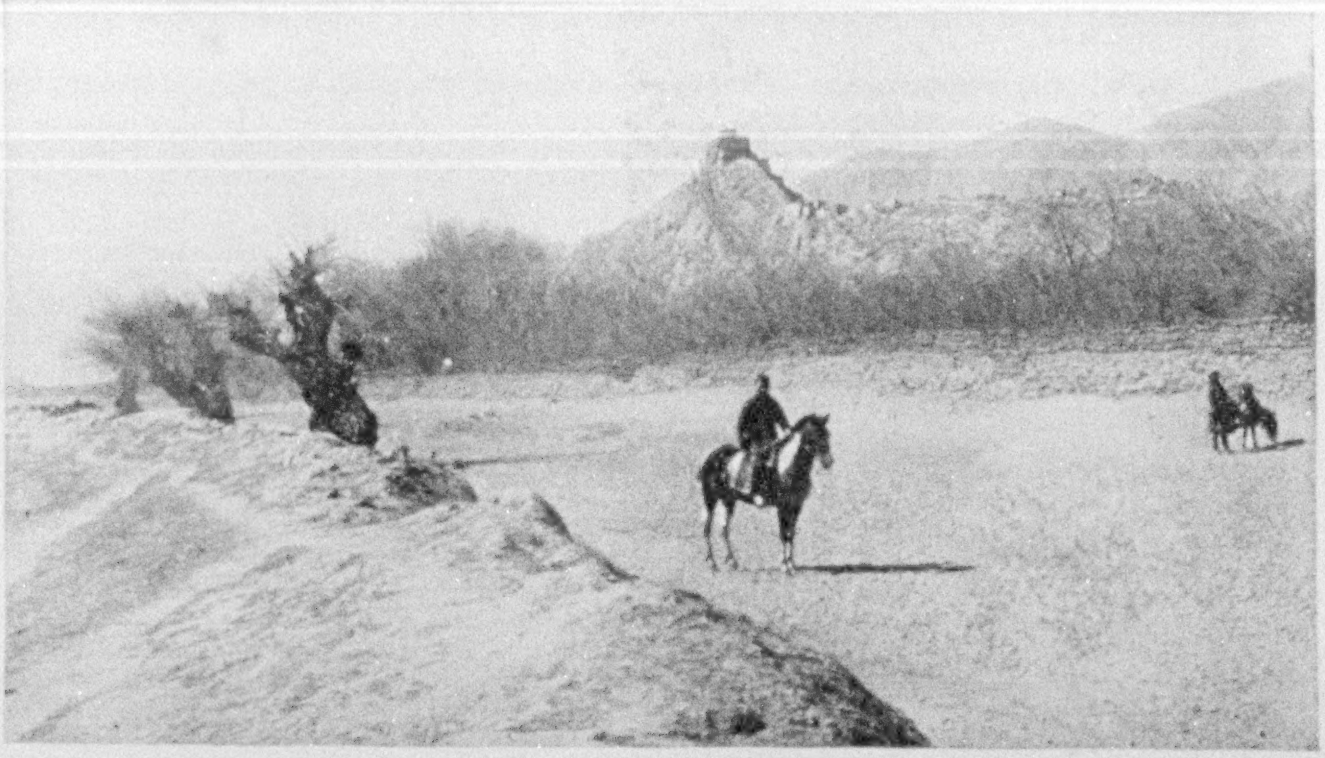


MEDICAL HILL

THE YAK, THE CHARACTERISTIC ANIMAL OF TIBET

As I have already said, the principal animals of Tibet are the yak and the horse. Of the two, the yak is by far the more useful and also much more common. The yak in many respects resembles the American buffalo, except that it is smaller.

Tibet is the only country that produces this peculiar animal, for it must live in a region at least 9,000 feet above the sea-level, and the average height of Tibet is from 12,000 to 15,000 feet above the sea.

To the Tibetans the yak is absolutely indispensable. Nearly every part of the animal is utilized. They eat its meat, drink its milk, use its butter, and wear its skin. Ropes and cloth are made of yak's hair, and dusters are fashioned from its tail. Strange to say, many houses in the northeast and southwest parts of Lhasa are built with yak horns (see page 988). Boats are also constructed with yak hide (see page 989). Owing to the lack of coal and the fact that wood is so scarce, the Tibetans use dry yak dung for fuel. The walls of some houses are also built of this material.

PRAYER WHEELS

As to all Christians, prayer is to the Tibetans also the most vital factor of their religious life. Fearing that the tongue and the mind may fail to offer sufficient prayer, additional praying is done by means of a prayer wheel.

A prayer wheel consists of a hollowed box, or cylinder, within which is a roll of prayers, with an axis running through the center, revolved by the centrifugal force. Attached to the outside is a short string or chain with a small weight at the end. The wheel is made to revolve by the centrifugal force of the weight, caused by a twirling motion of the hand. Thus the roll of prayer is turned within while the wheel revolves, and the prayer is done. Meanwhile the holder of the wheel also makes oral and silent prayers.

Tibetans believe that emancipation from sin can be obtained by walking over the road which surrounds the city several times a day and praying in the above manner.

Another way of offering prayer is by arranging prayer wheels in such a way that they will be turned by the wind (see page 993). There is still a third way, in which the prayer wheel is turned by the water of a stream. Prayer pennants are seen everywhere throughout the country. Some say that these ridiculous ways of praying originated from the extraordinary laziness of the Tibetans.

MEDICAL HILL, SHOWING THE "TEN THOUSAND" COLORED IMAGES CARVED IN THE SLOPE OF THE HILL

TIBETAN WRITING

Tibetans have two ways of writing characters. One is with pen and ink, the other with a style, chalk powder, and blackboard. In the pictures is shown a Tibetan holding a stub-shaped bamboo pen in his right hand (see page 991). The inkstand is set in the box further to the right. He writes horizontally from left to right, like Europeans.

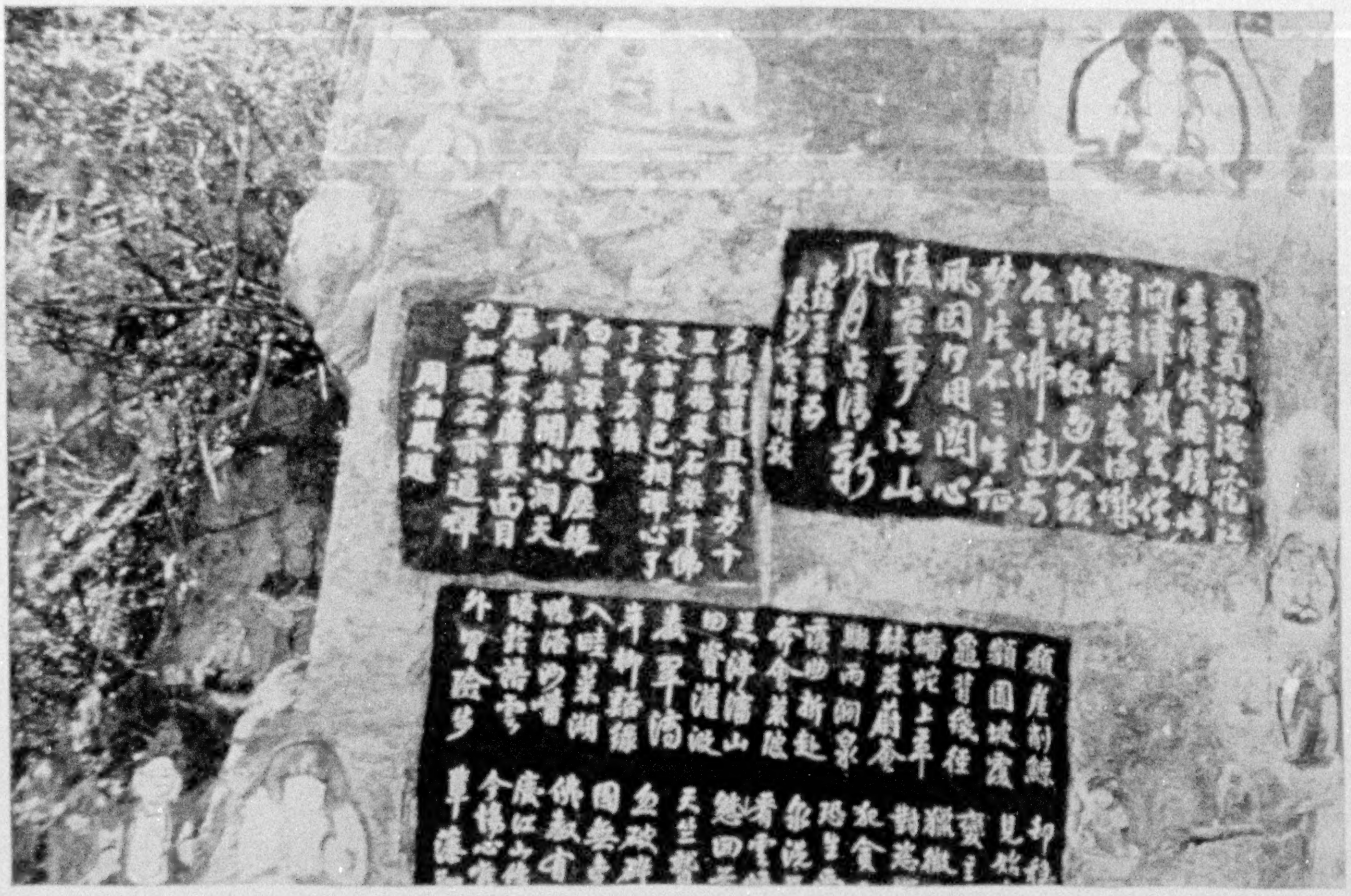
The other picture (page 991) depicts the second method. The writer holds in his left hand a blackboard covered with chalk powder. In his right hand is a small style, with which he scratches the characters on the blackboard. These characters are formed by the exposed black background. This process of writing is most interesting and unique, being just the opposite of the ordinary chalk-and-blackboard system.

BURIAL CUSTOMS OF TIBET

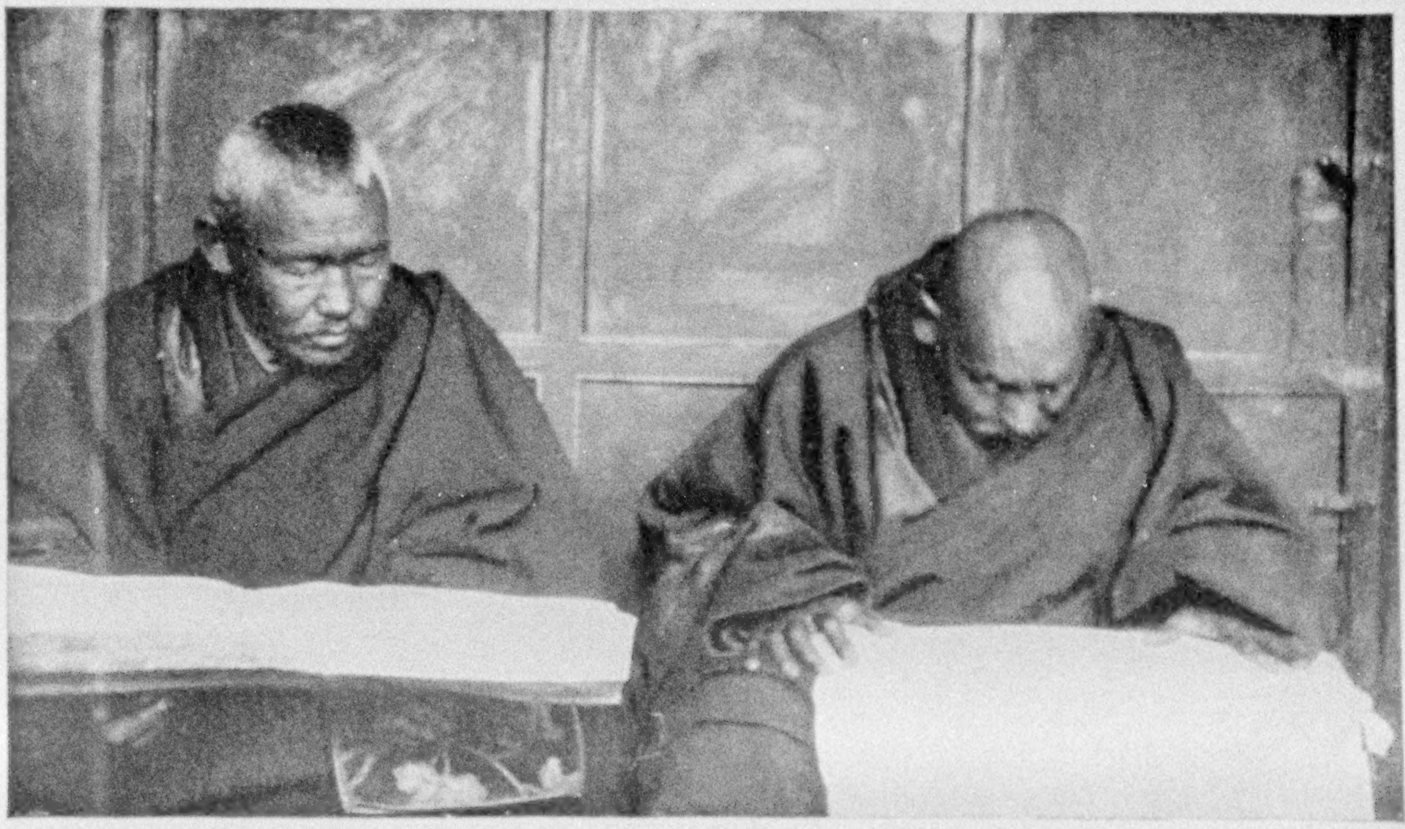
Most astounding and superstitious perhaps of all the customs in Tibet are the different ways of burial which prevail. Lamas of the higher order are generally cremated by fire. Some of the dead bodies of the ordinary people are placed on the top of high mountains, where they become the prey of crows, hawks, and vultures.

The common people generally dispose of the bodies of deceased persons by cutting the flesh into small pieces and pounding the bones into paste, mixing these with barley flour. With this compound they feed the dogs. These dogs have been trained so thoroughly that when the funeral ceremony takes place they all form in line and stand patiently, like people buying tickets at a railway station, awaiting their turn for the feast.

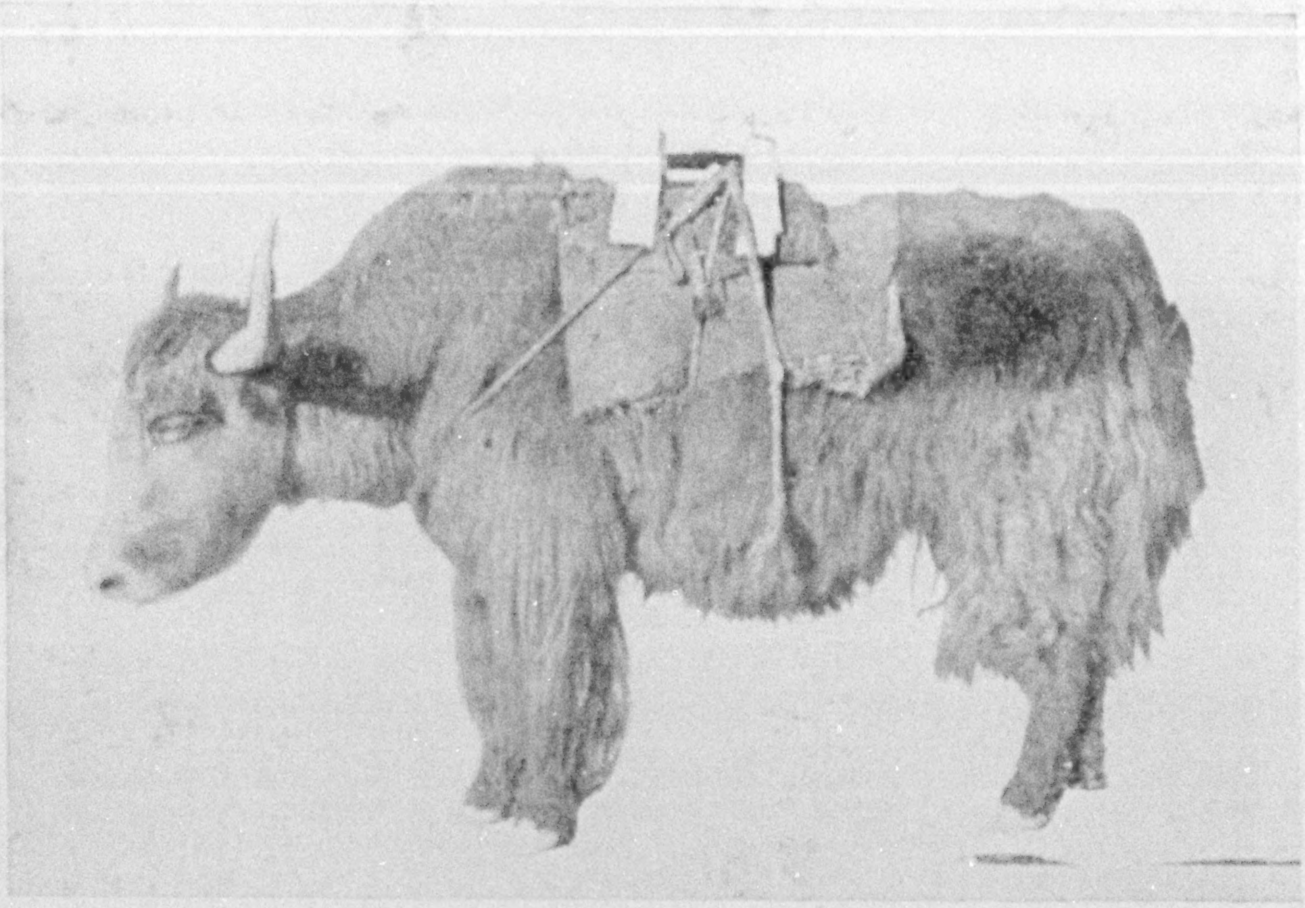
Dogs abound in Tibet. Since the Tibetans believe that men are transformed into dogs after death, the people worship dogs as gods. Dogs, therefore, are regarded as



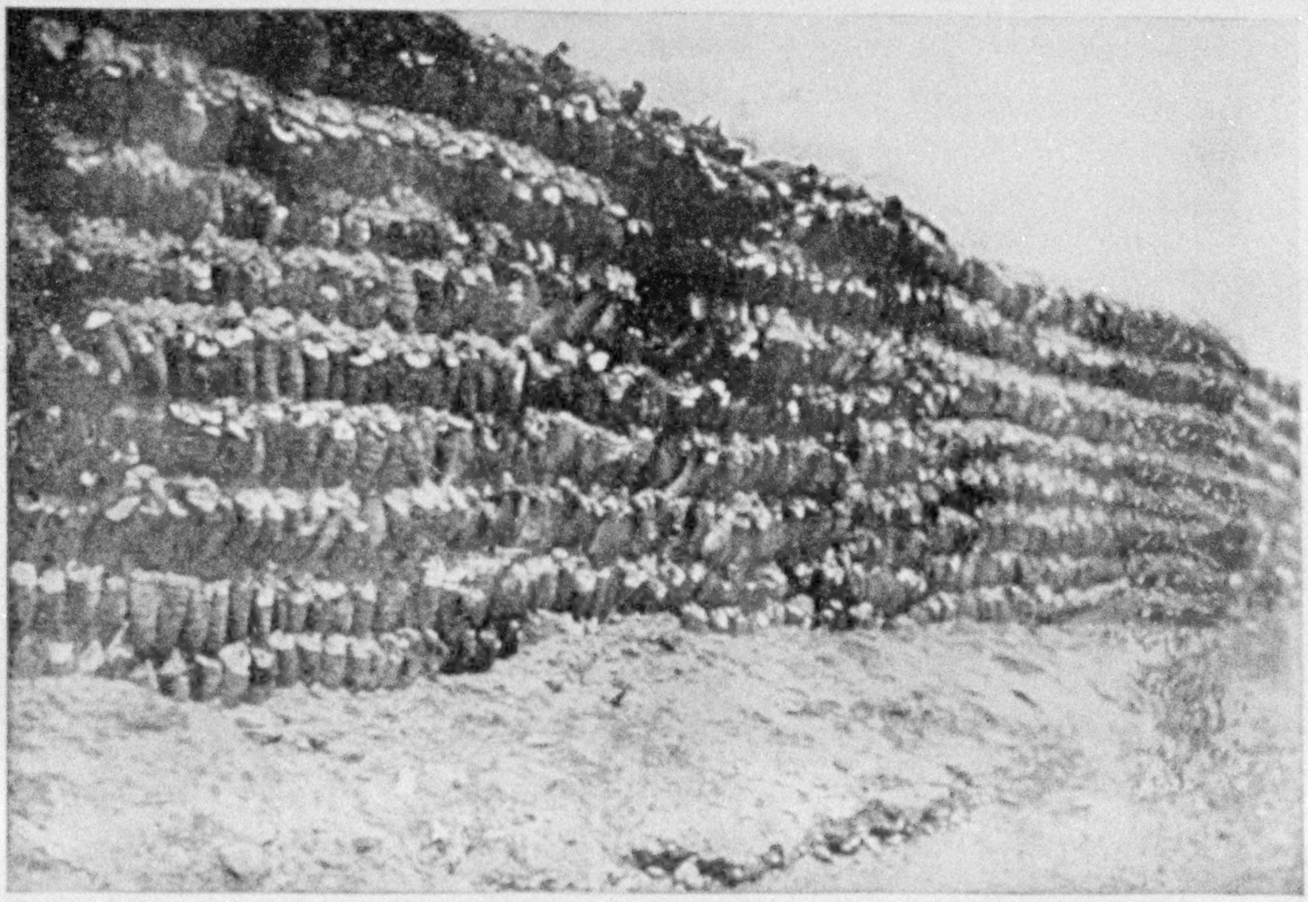
INSCRIPTIONS ON THE MEDICAL HILL



TWO LAMAS READING



YAK SADDLED, READY FOR TRANSPORT OF GOODS



COURT WALL BUILT OF YAK HORNS

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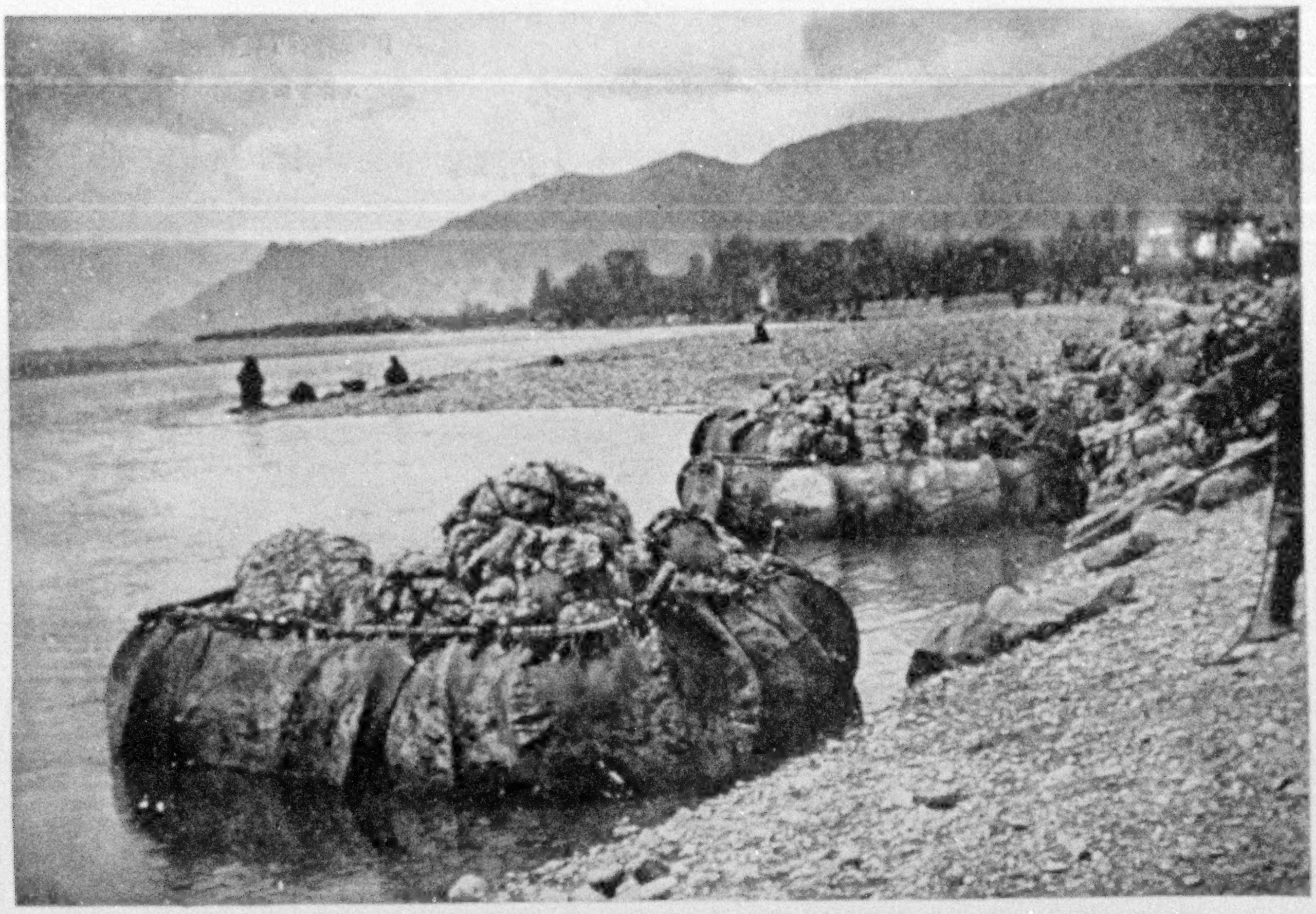
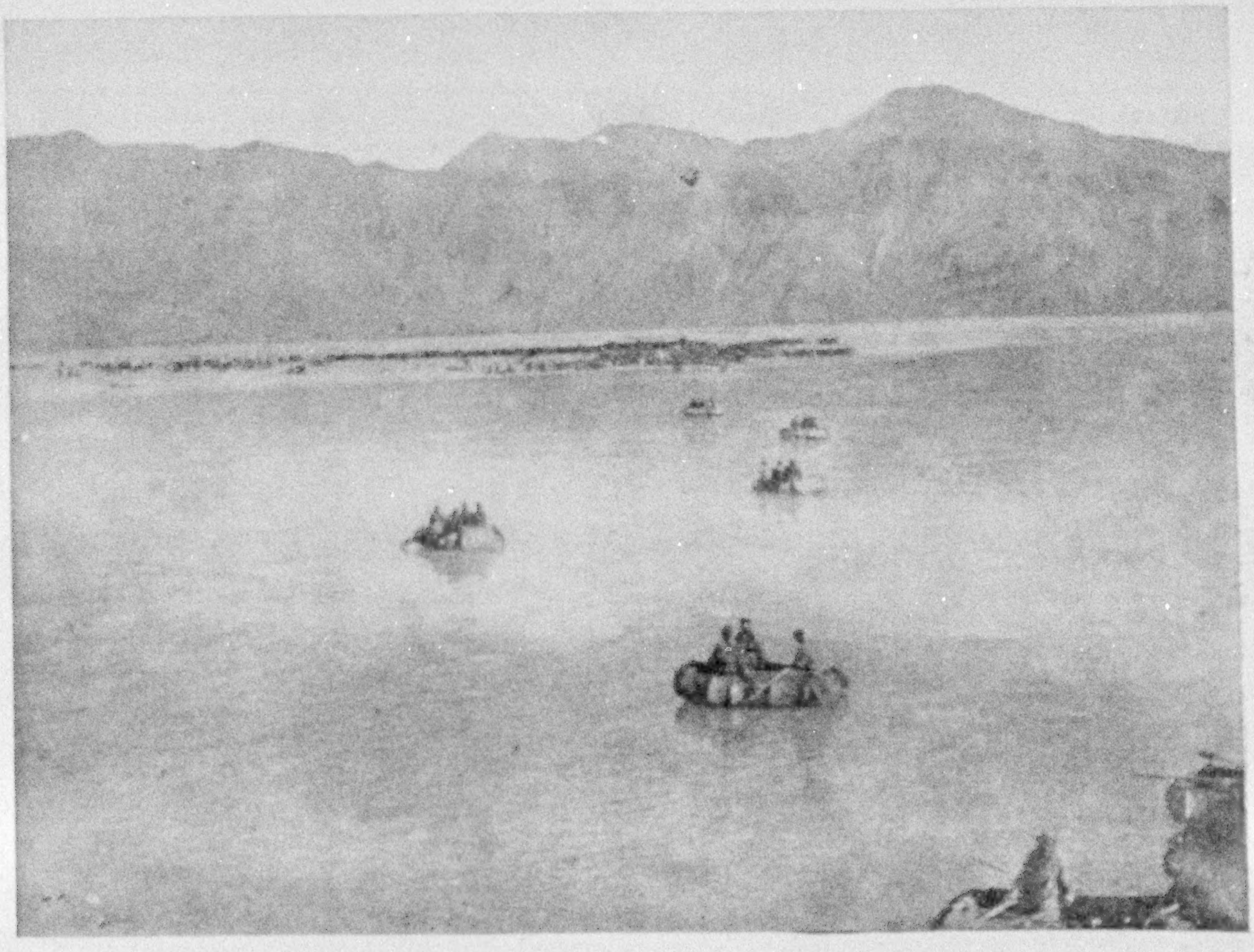


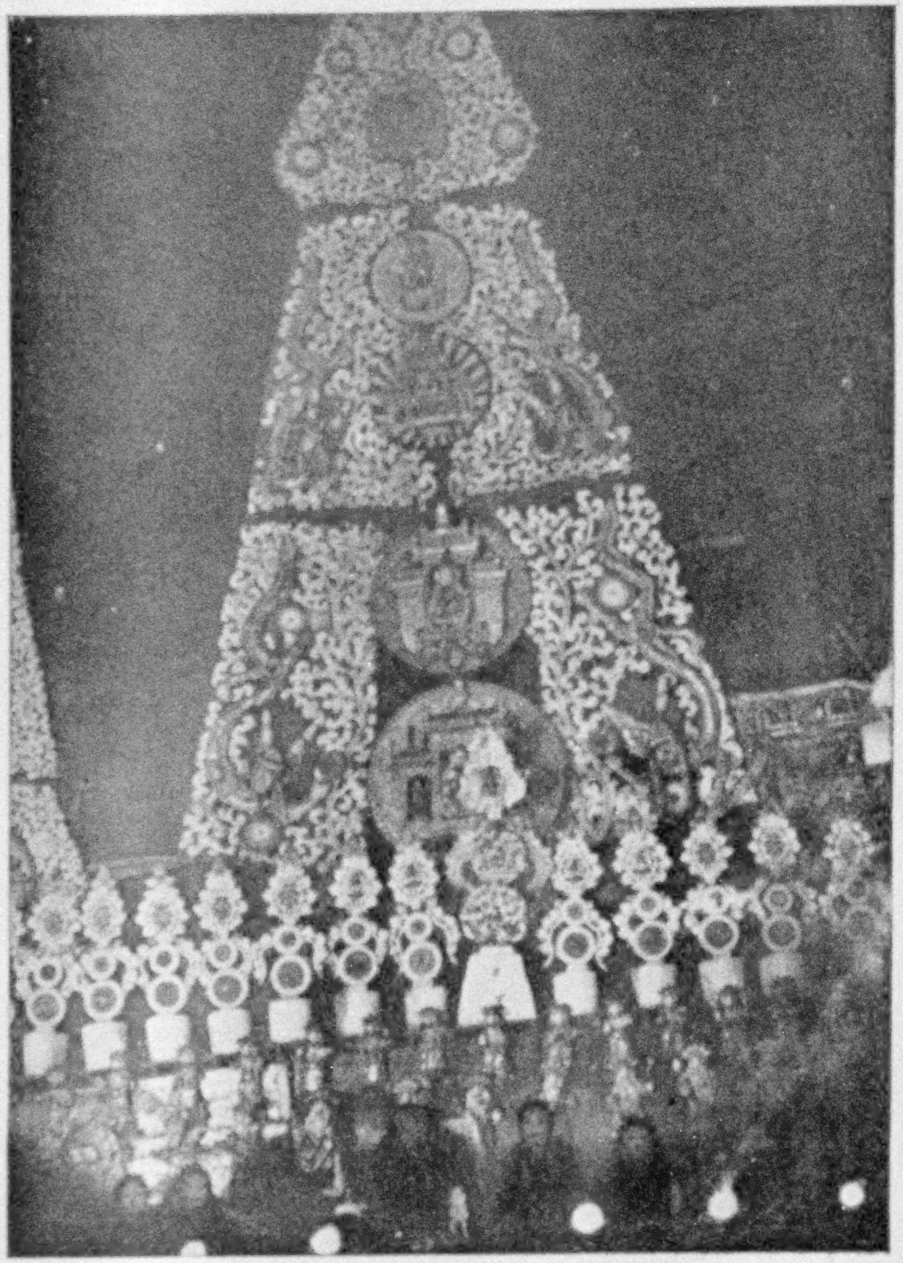
YAK-HIDE BOAT ON THE RIVER BANK LOADED WITH WOOL

The boat is built of willow branches covered with yak-hide. Its lightness makes it easy to navigate. But it is so frail that a blow from one's heel may make a hole in the boat. Persons are often drowned in this way.



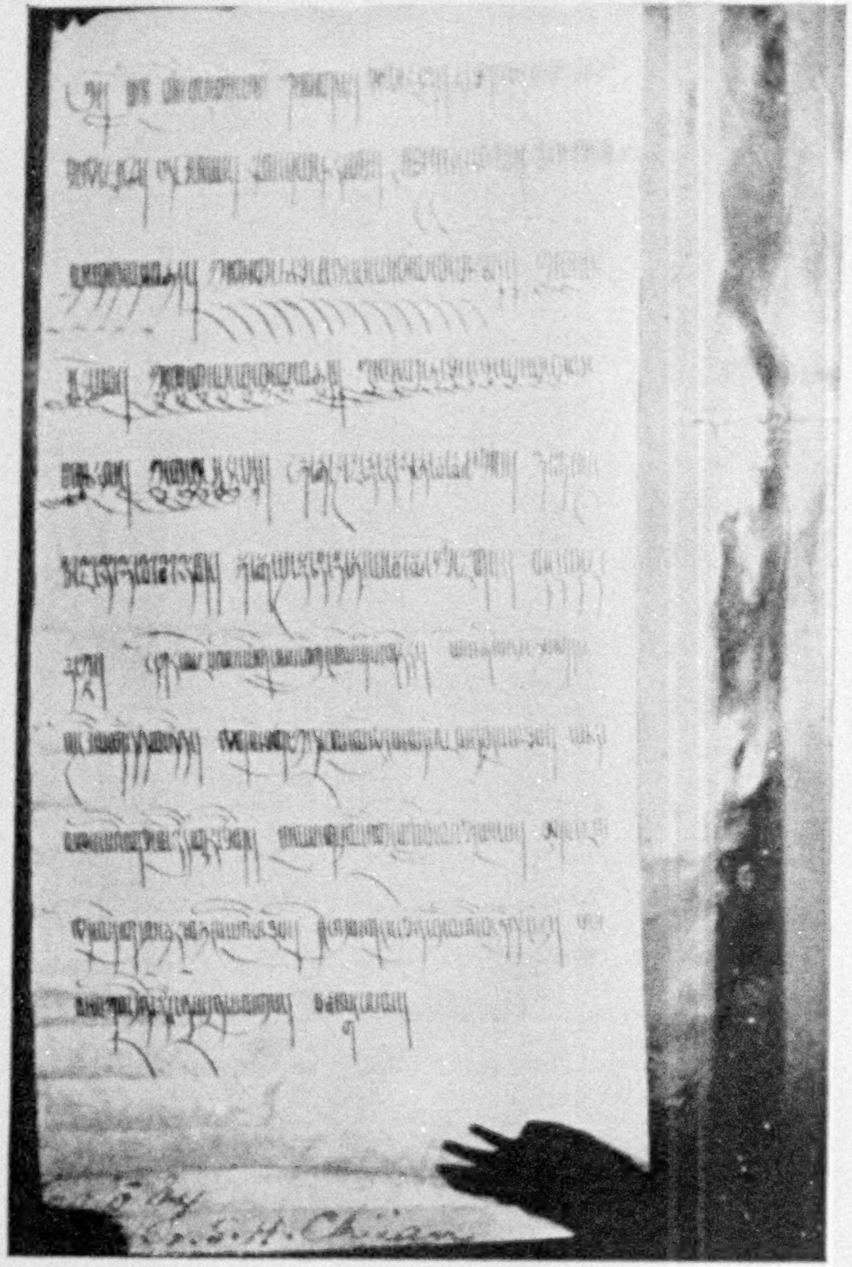
YAK-HIDE BOATS CARRYING PASSENGERS ACROSS THE RIVER (SEE TEXT, PAGE 985)

XUM

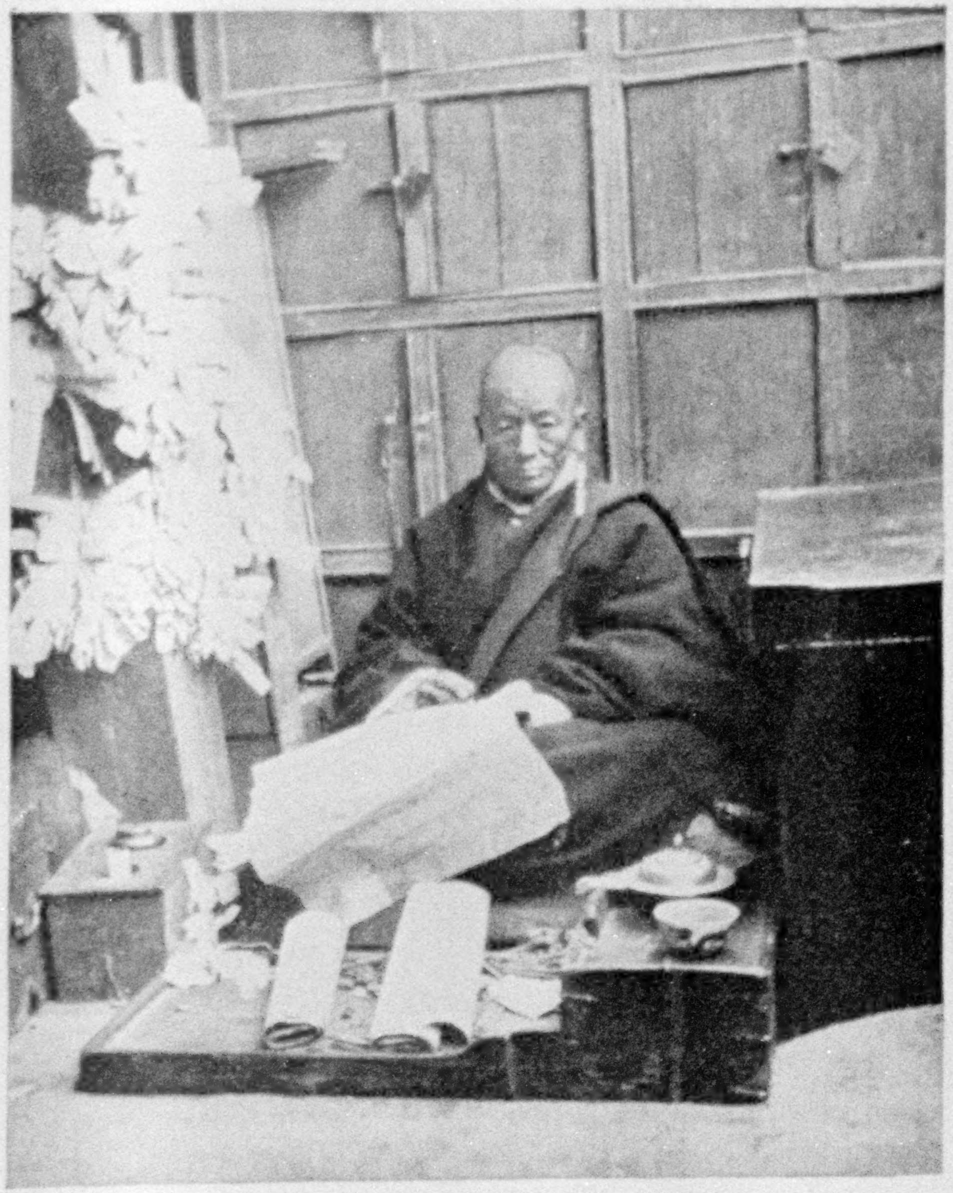


TABLET 50 FEET HIGH, MADE OF BUTTER ENTIRELY, IN VARIOUS ELABORATE DESIGNS, SUPPORTED BY A WOODEN SHELF

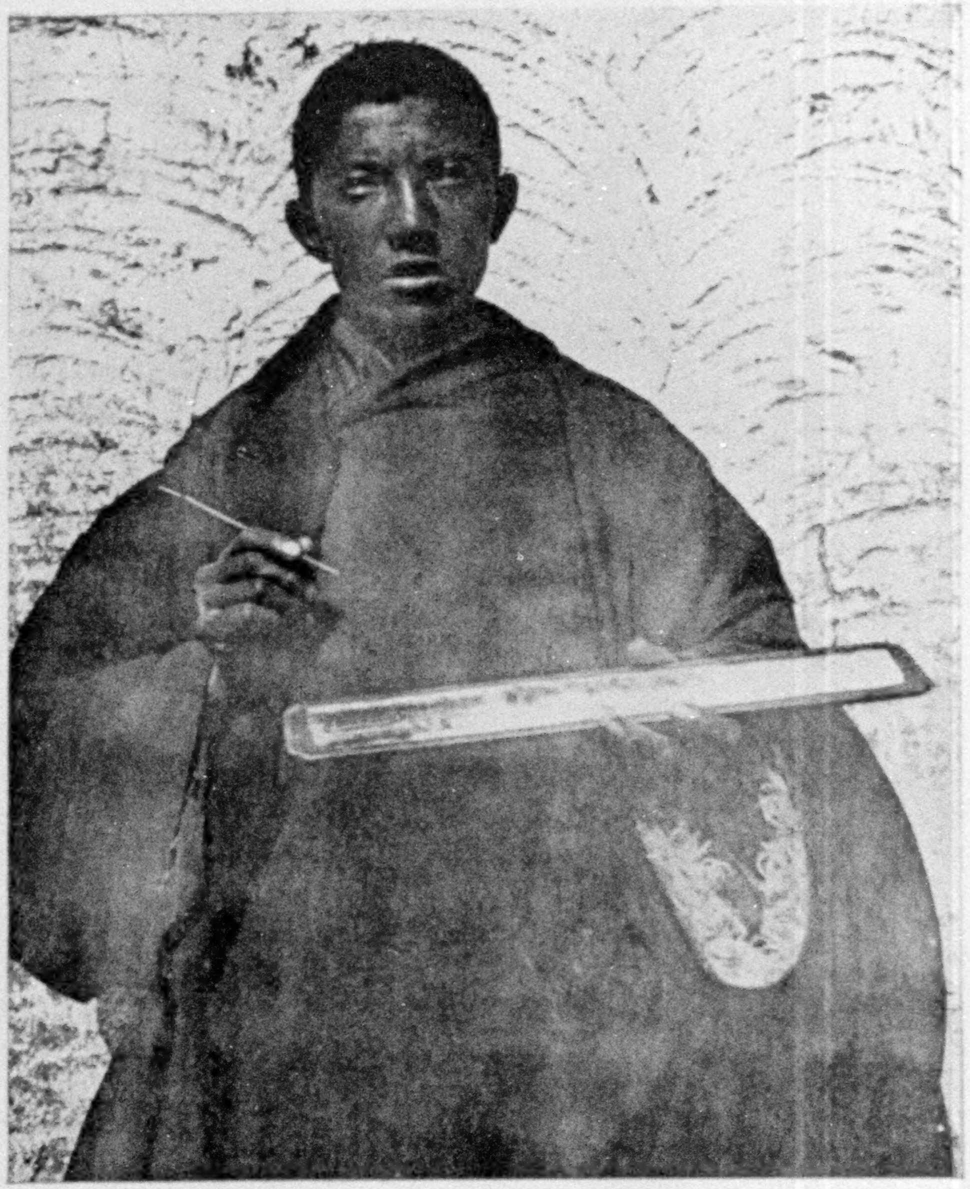
Tablets like this, 108 in number, are erected in all parts of the city at nine o'clock on New Year's eve. All are thrown into the sacred river early the next morning as a sacrifice to the river god. This photograph was taken by flash-light. The size of the tablet can be realized by comparing it with the Lamas sitting in front.



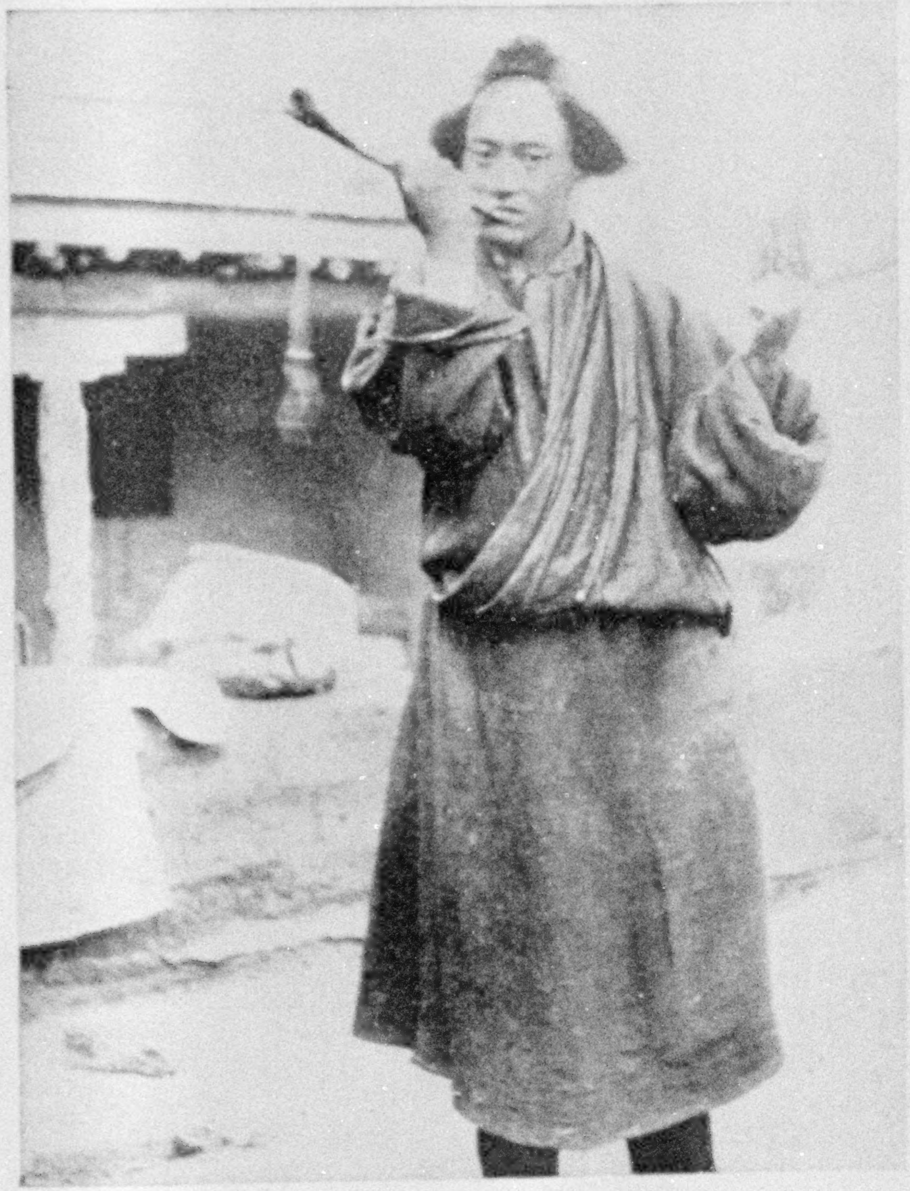
HANDWRITING OF THIRTY-SIX TIBETAN WORDS



A TIBETAN SCHOLAR WRITING A DOCUMENT WITH PEN AND INK

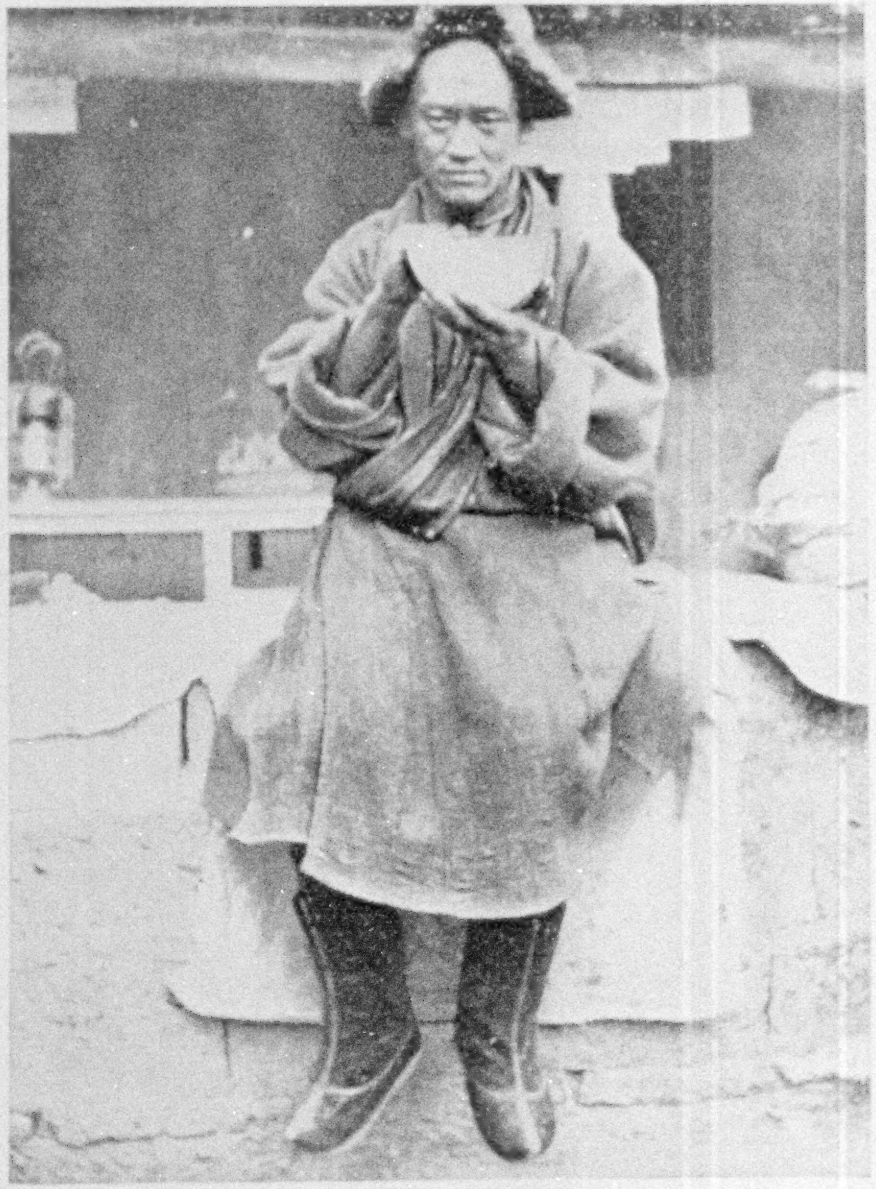


A TIBETAN ILLUSTRATING THE "SECOND METHOD" OF WRITING (SEE TEXT, PAGE 986)

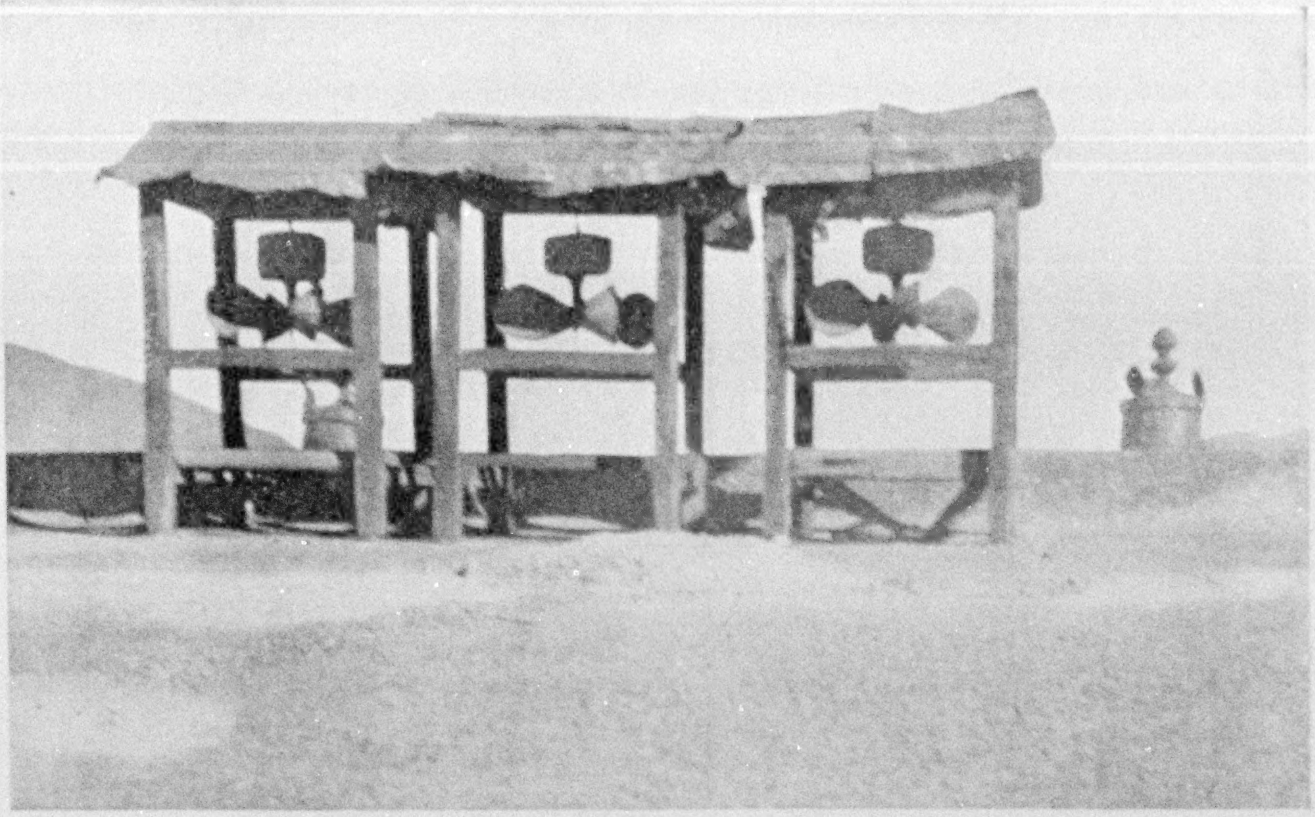


A TIBETAN BLOWING A TRUMPET MADE OF A HUMAN THIGH BONE, DECORATED WITH GOLD, SILVER, AND PRECIOUS STONES

In his left hand is a small drum made out of two skulls (see text, page 994)



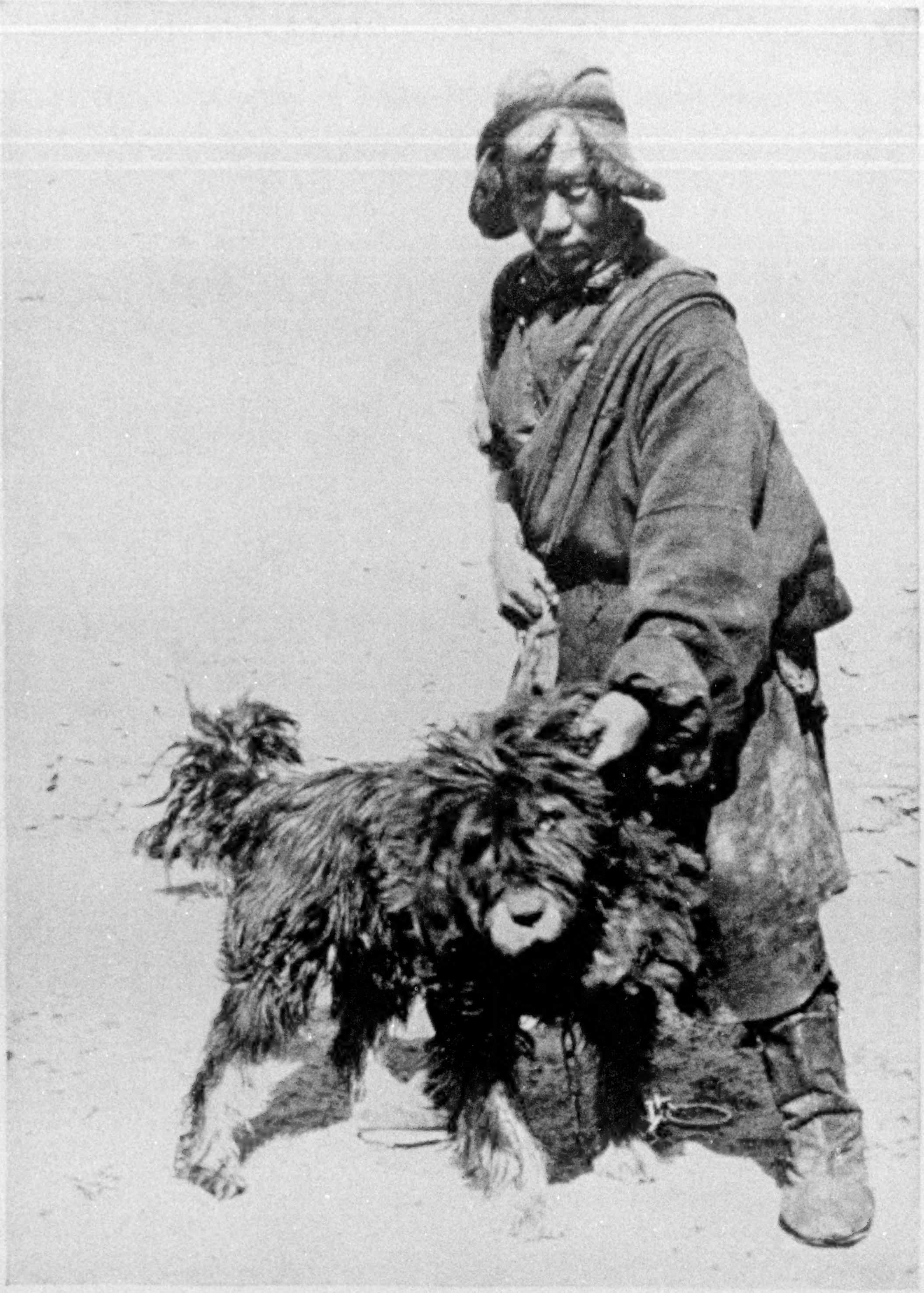
A TIBETAN EATING "TZANG-BA" (BARLEY FLOUR) FROM A BOWL MADE OUT OF A HUMAN SKULL



PRAYER WHEELS PROPELLED BY WIND (SEE TEXT, PAGE 985)

STONE SQUARE WHERE BODIES OF THE DEAD ARE CUT TO PIECES AND FED TO DOGS

Thousands of human bodies have been dismembered here (see text, page 986)

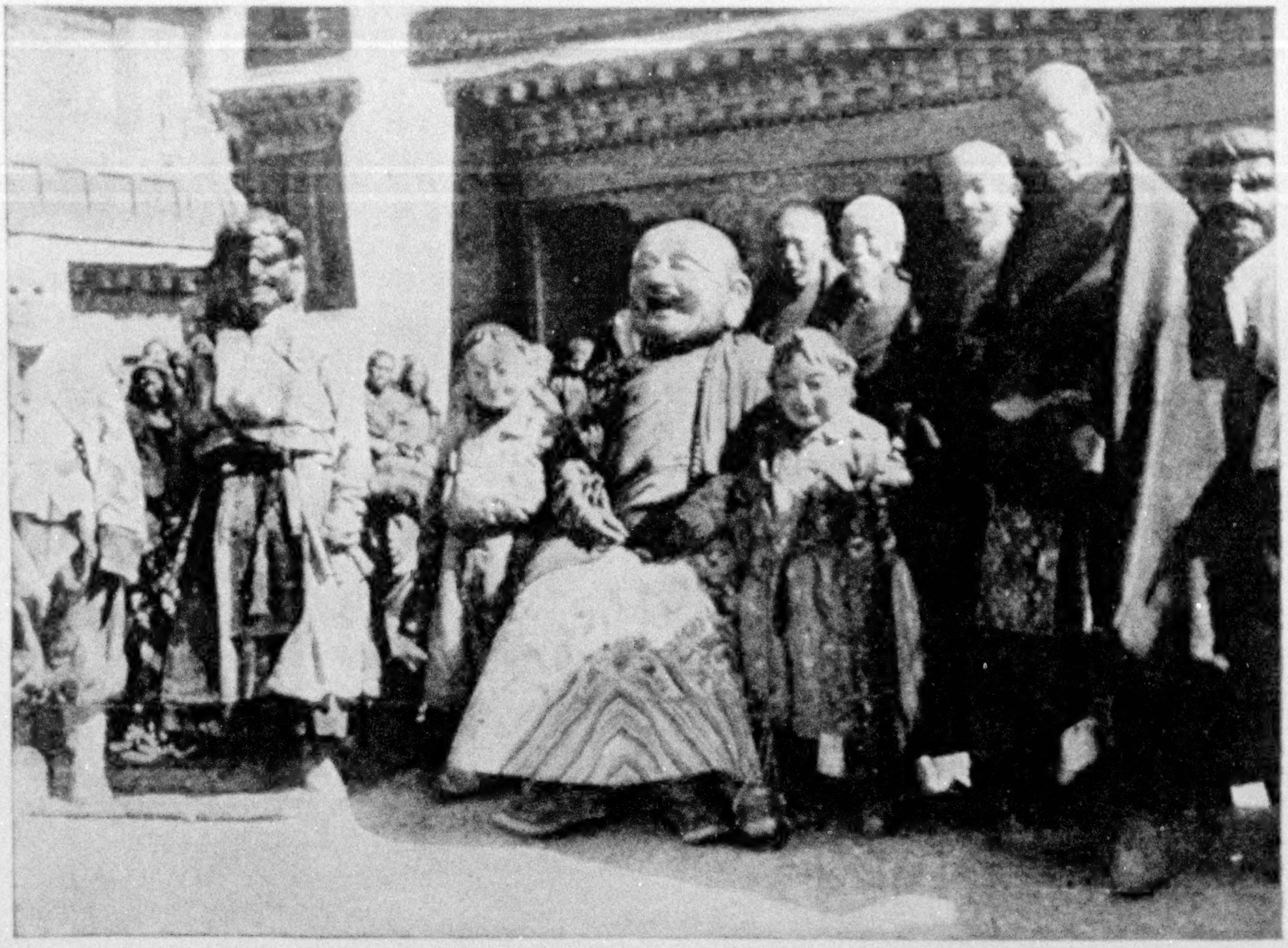


A TIBETAN MASTIFF

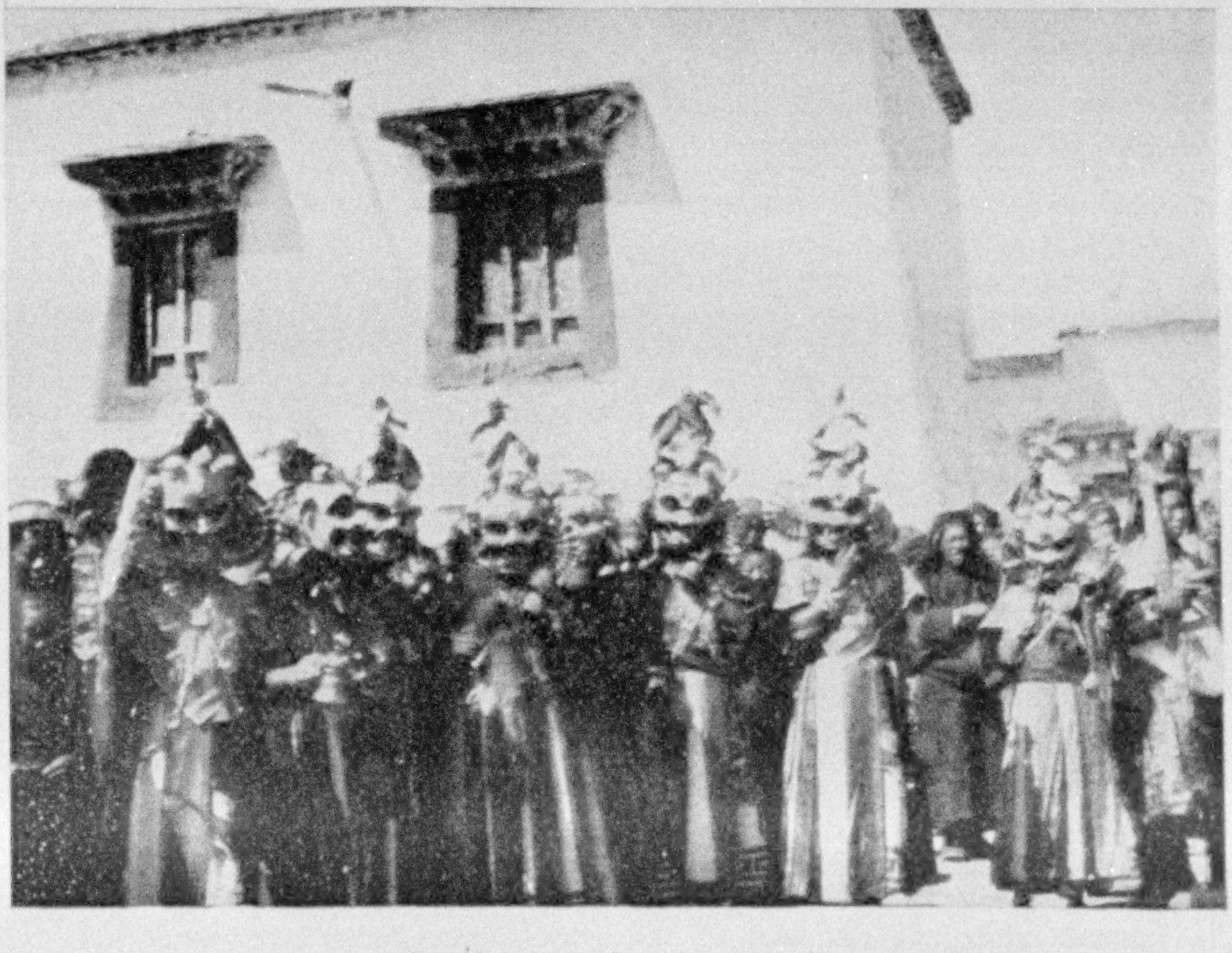
This red-eyed, lion-like animal is very wild and hard to tame. The dog has to be bought together with the keeper, since no other person dares to feed and deal with it

public property in Tibet and eat and sleep where they please.

Another mode of disposing of the dead is by throwing the corpse into the sacred river. The most extraordinary thing about this custom is that after the body has been thrown into the river it is taken out by some one else, who waits farther down the stream. The dead body is then cut to pieces; the thigh bones are used to make trumpets and eating bowls (see page 992) and drums are made of the skull. The beads of rosaries are also made of human bones.



BUDDHA AND "DEVIL ATTENDANTS" WATCHING AND DIVERTED BY THE "DEVIL'S DANCE"



DEVIL'S MASQUERADE IN TIBET

Tibetans celebrate the New Year and other festivals by wearing masks of various kinds

CHINA'S TREASURES

By Frederick McCormick

Author of "Present Conditions in China," in the National Geographic Magazine

FAINT echoes of China's inscribed, sculptured, and wrought memorial wealth have reached the world through travelers' tales and erudite researches by sinologues. Hitherto the image in the popular mind of the monuments of China had for its center some poetical structure like the "stately pleasure dome" of Kublai Khan imagined by Coleridge in his poem "Cambaluc":

"In Xanadu did Kubla Khan
A stately pleasure dome decree;
Where Alph, the sacred river, ran
Through caverns measureless to man
Down to a sunless sea.

"So twice five miles of fertile ground
With walls and towers were girded round;
And there were gardens bright with sinuous rills,
Where blossomed many an incense-bearing tree;
And here were forests ancient as the hills,
Enfolding sunny spots of greenery."

Coleridge could not have selected a phrase more apt than "stately pleasure dome" had he intended to call attention to the best-known form in Chinese architecture and among China's monuments. Like so much of the wrought beauty of China, such as is still seen in parks and gardens, pagodas are the work of the Buddhist church almost exclusively. Perhaps none of them are older than 900 years and most of them were built by the Ming dynasty, 1368-1644 A. D.

The most beautiful specimens are in the Yangtse Valley, where pagodas are most numerous. Every important Chinese and Manchurian city is garlanded with them. From the walls of Peking a dozen pagodas and towers may be counted within the city, and with a good glass half a dozen famous ones may be seen rising from the surrounding plain.

Materials of sacred import are incorporated in these structures. In the western park, adjoining the Forbidden City, is a famous white pagoda, part of the stones of which were brought from a mountain in Honan province by the Kin Tartars.

Another white pagoda, which stood in the western hills, 12 miles from Peking, was constructed of stamped bricks, many of which had this inscription: "The Buddhist doctrine comes from the Cause. I say there is a Cause. The Cause vanishes. I do according to this saying." The last sentence has been interpreted by a Chinese scholar as meaning: "When the Cause is vanished, still I make this declaration."

As Buddhism is in a state of arrested development, nearly all pagodas are lapsing into ruin. At the same time the ruin of the pagodas has been singularly assisted in China by European armies in 1844, 1860, 1900, and 1904.

March 9, 1905, the Russian army south of Mukden blew up a small pagoda in its retreat in order that it would not be a landmark to the Japanese artillery. The debris was used by the Japanese to mend roads. The white pagoda in the western hills, just mentioned, was destroyed September, 1900, by troops of the allied powers. It was a beautiful pagoda and its loss was lamented more by foreigners, perhaps, than by Chinese. Vandalism in China has not been confined to any race or civilization. The revolutionist soldier of 1911 used an ancient tower on the lower Yangtse as an artillery target.

Pagodas range in height from 20 to more than 200 feet, and are of various shapes—round, square, hexagonal, octagonal, etc. They always have an odd number of stories, ranging usually from seven to nine, and sometimes possessing 11 and even 13. The famous porcelain pagoda at Nanking, which, according to Longfellow, was a "blaze of colors," and which was destroyed in 1844 by foreign troops, was 261 feet high. So far as I know, there is only one other pagoda in the Chinese Empire of this height. The

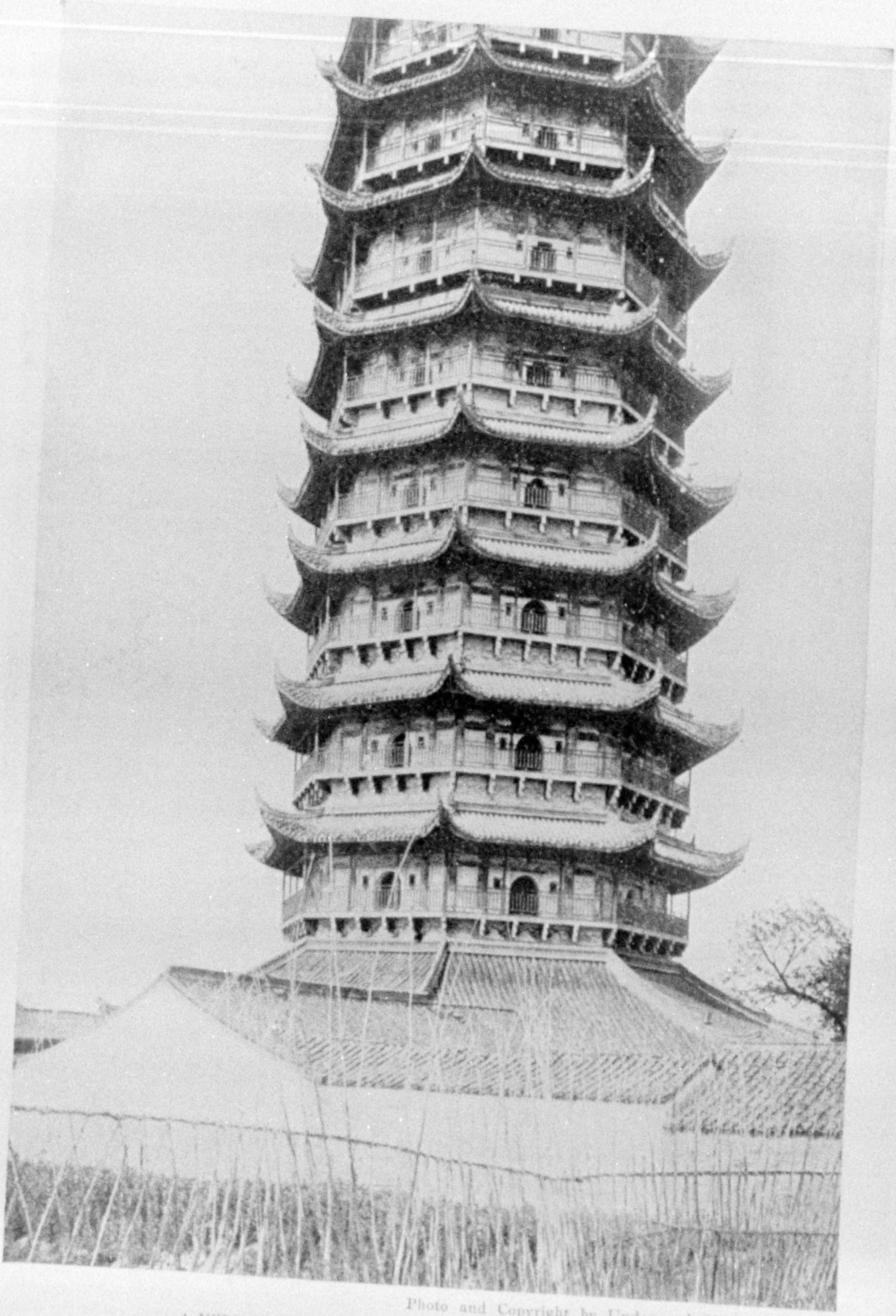


Photo and Copyright by Underwood & Underwood

A VERY BEAUTIFUL PAGODA AT SOOCHOW, CHINA

Like the church spires of western lands, China's pagodas beckon the beholder to shrines or temples

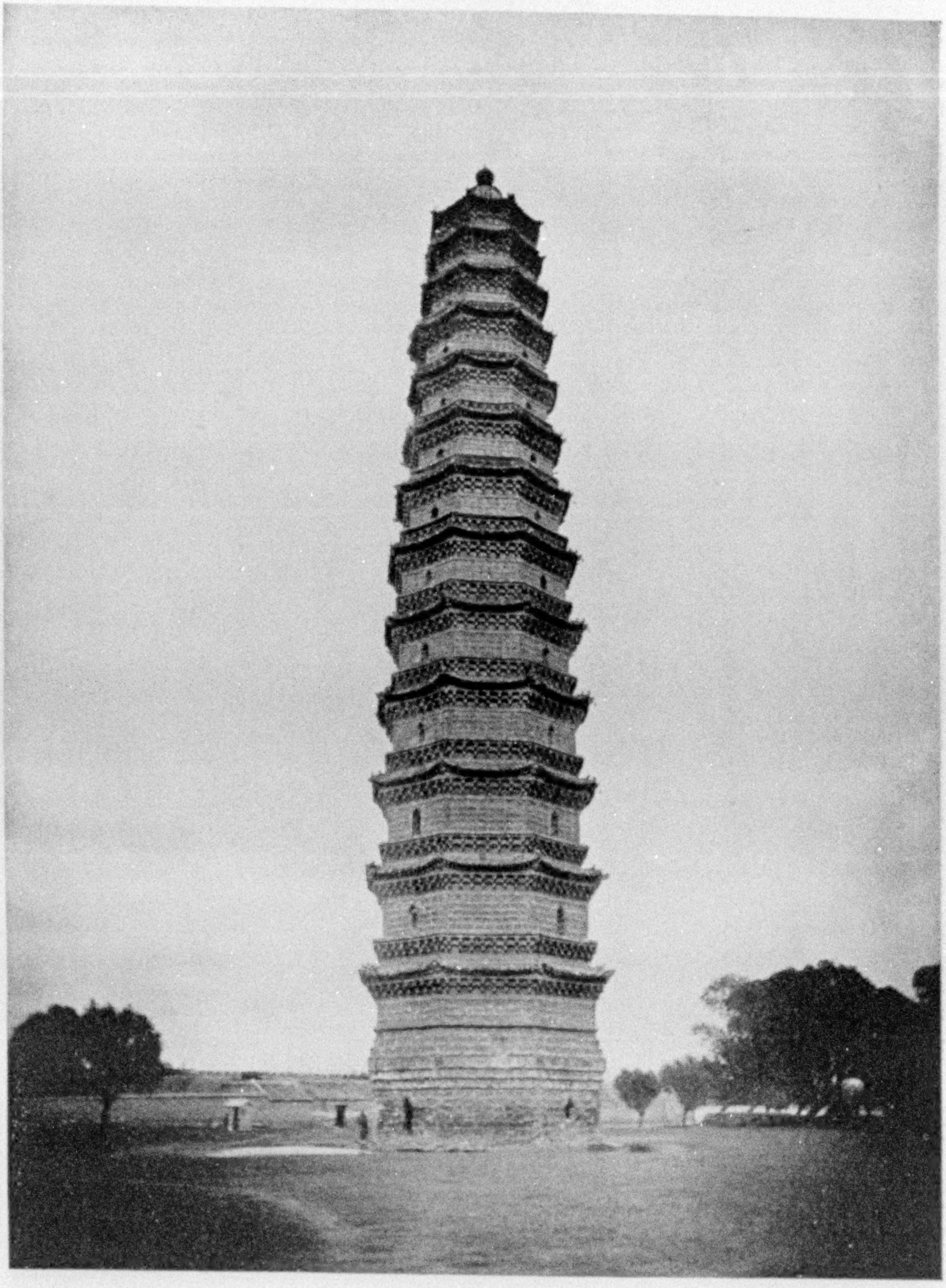


Photo by Frederick McCormick

THE FAMOUS IRON PAGODA AT KAI-FENG

This pagoda is built largely of glazed tile or porcelain. There are probably 2,000 pagodas in China. They always have an odd number of stories, usually ranging from seven to nine. This is one of the tallest in the Kingdom.

XUM

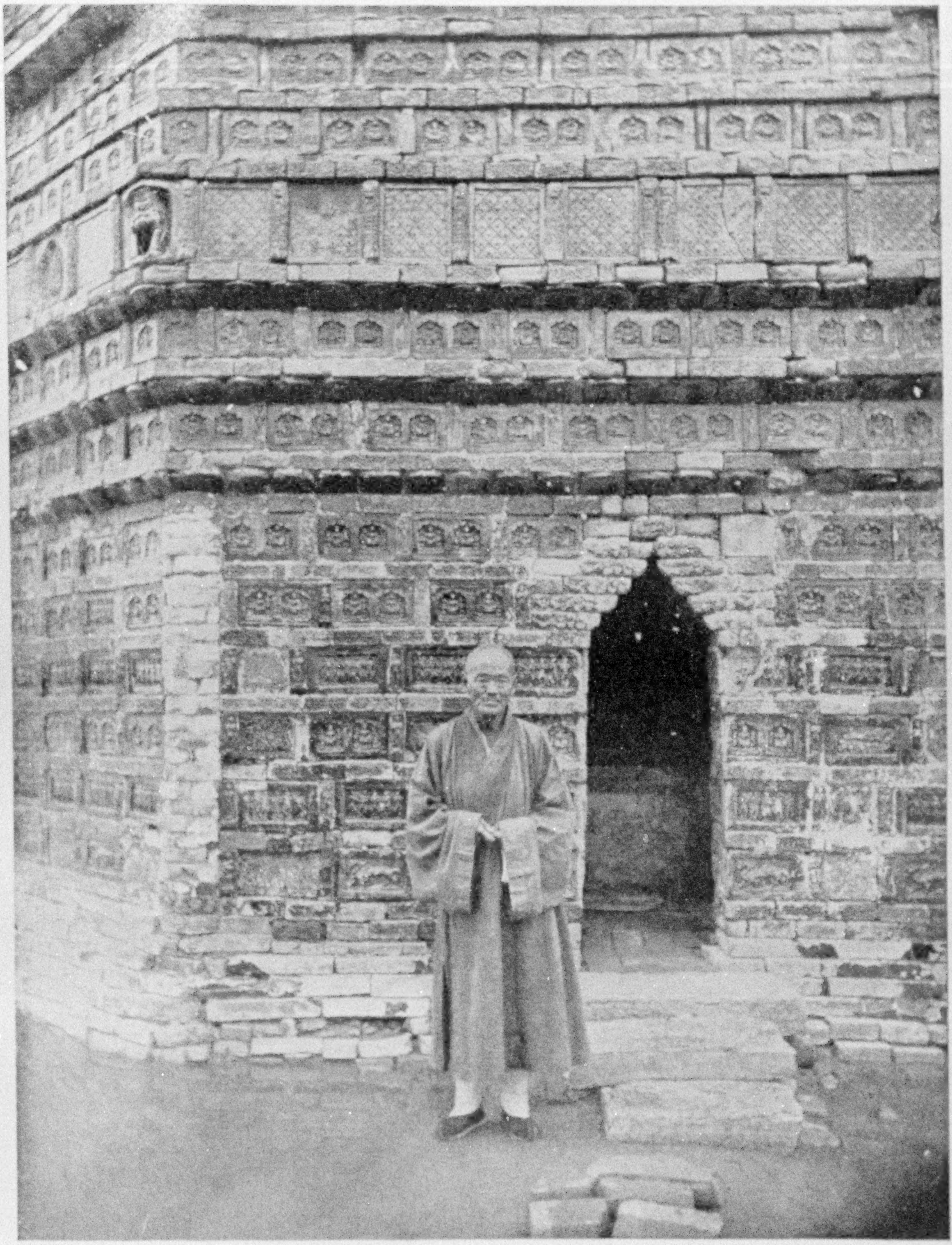


Photo by direction of Mr. Charles L. Freer

A DETAIL OF THE "IRON" PAGODA AT KAI-FENG, SHOWING SOME OF THE PORCELAIN TILES OF WHICH IT IS LARGELY CONSTRUCTED height of the Pai T'a, or White Pagoda, at Fuchau, is also given as 261 feet.

Pagodas built of tiles, after the manner of the porcelain pagoda, are quite rare in China now. An example of a small but very beautiful one is in the Summer Palace near Peking. Another worth noting, though not entirely of glazed tile or porcelain, is that at Kai-feng, called the Iron Pagoda (see page 999).

The number of pagodas in China has never been ascertained, and perhaps the only estimate ever made is that by the distinguished American sinologue, S. Wells Williams, who placed the number at "nearly 2,000" for the Empire. Like the church spires of western lands, China's pagodas beckon the beholder to shrines or temples frequently associated with them. But there have been other reasons for the building of these graceful objects.

The Chinese have appropriated the pagoda as a counterpoise to evil and used it subject to their rules of geomancy. They adopted it in the expansion of their ideas of "Fung-shui" (Good and evil influences).

At the city of Tung, in the Peking plain, a region in past years visited by earthquakes, there is a prominent pagoda which at one time had more than 1,000 bronze bells suspended from its cornices, most of which are still in place. The people have this story as to its construction: A water owl lives underground at this place and when he shakes his tail it causes earthquakes. Geomancers located the end of his tail, and the pagoda was built on it to hold it down. At the same time this did not prevent the water owl from winking his eyes; but, as his eyelids have not been accurately located, a second pagoda has not yet been built. As a result, tremblings of the earth still occur.

To Chinese their pagodas begin to appear as landmarks of a stage of civilization to be discarded. On the eve of the rebellion of 1911 the Chinese press at Shanghai for the most part was adverse to the continued use of the Lunghwa pagoda, six miles away and one of the best-known in China, with its buildings, for the purposes of superstitious worship. Under the republic the disposition appears to be to convert the temples into modern schools, in which case the pagodas will become monuments to the age of geomancy and to the period of the revival of Buddhism.

Nothing can interfere with their grace and beauty. Denizened by birds and often dotted with vegetation, they are the pride and inspiration of the townspeople. They stand for generations like sentinels, often long after the temples to which they have belonged have disappeared. Pagodas are one of the noble gifts which Buddhism has conferred on China.

MEMORIAL ARCHES TO WOMEN

There is but one architectural object to be found in China that may be said to compete in grace, beauty, and numbers with the pagoda. This is the p'ai-lou, or commemorative arch. There are usually three arches, the central one being the largest. The most splendid of all the p'ai-lous, perhaps, is the one of five arches in front of the Ming tombs near Peking (see page 1006); but the most famous is said to be the one of colored tiles at the Hall of the Classics at Peking. It is not usually known that there is a duplicate of this p'ai-lou in the western park adjoining the Forbidden City.

The p'ai-lous have been almost exclusively erected in honor of deities, worthy men, and virtuous women. None are more impressive than those erected, at great cost, to faithful virgins, or to devoted wives, symbolized in Chinese legend and art by the fabled phœnix, that having once selected her mate never changes (see page 1002).

Such memorials, which are many in China, represent a national expression of that regard for women which the Indian king manifested in the building of the Taj Mahal in memory of his wife—called the most splendid tomb ever built to woman.

Among China's most durable monuments are her bridges, the greatest display of which is perhaps along the Grand Canal. A spectator has described their various forms as "hump-back, horseshoe, spectacle, camel-back, and needle-eye."

The openings are often very narrow, but very high, sometimes on a narrow canal rising 50 feet from the water. The ornamentation of bridges in China is characteristically original. Balustrades have sculptured tigers, dogs, monkeys, and other apocryphal animals, and the approaches and arches are ornamented with guardian lions and dragon-head gargoyles.

The "camel-back" bridge, which abounds from one end of China to the other, is not less graceful nor less beautiful than the pagoda or p'ai-lou. Like the pagoda, it is one of the frequent objects that, as a background in Chinese scenes, served the occidental artist and engraver in conveying to the peoples of western countries the first impressions of China. It is the "pole vault" in bridges, springing from the banks of narrow canals and giving wide berth to the masts of canal vessels.

China has bridges and remains of bridges with an antiquity of 2,000 years and more. Bridges still in use saw their construction contemporaneous with the oldest architectural remains in China. The so-called Marco Polo bridge, 12 miles from Peking, is perhaps the best-known to travelers. It has 11 arches and was built in the eleventh century of our era.

In connection with the bridges ought to be mentioned, among China's monuments, the Grand Canal (see article on Canals of China, pages 931-958, in this number), which shares with but one other great construction in China the distinction of being the best-known monumental work of the Chinese. It was as magnificent a scheme in its time as is the Suez Canal, or the Panama Canal today. It had its origin in the merging of minor canals, and even today is still a grand trunk line, affording inland communication with almost the whole water system of China.

What the Grand Canal means in the life of the people and what it meant in

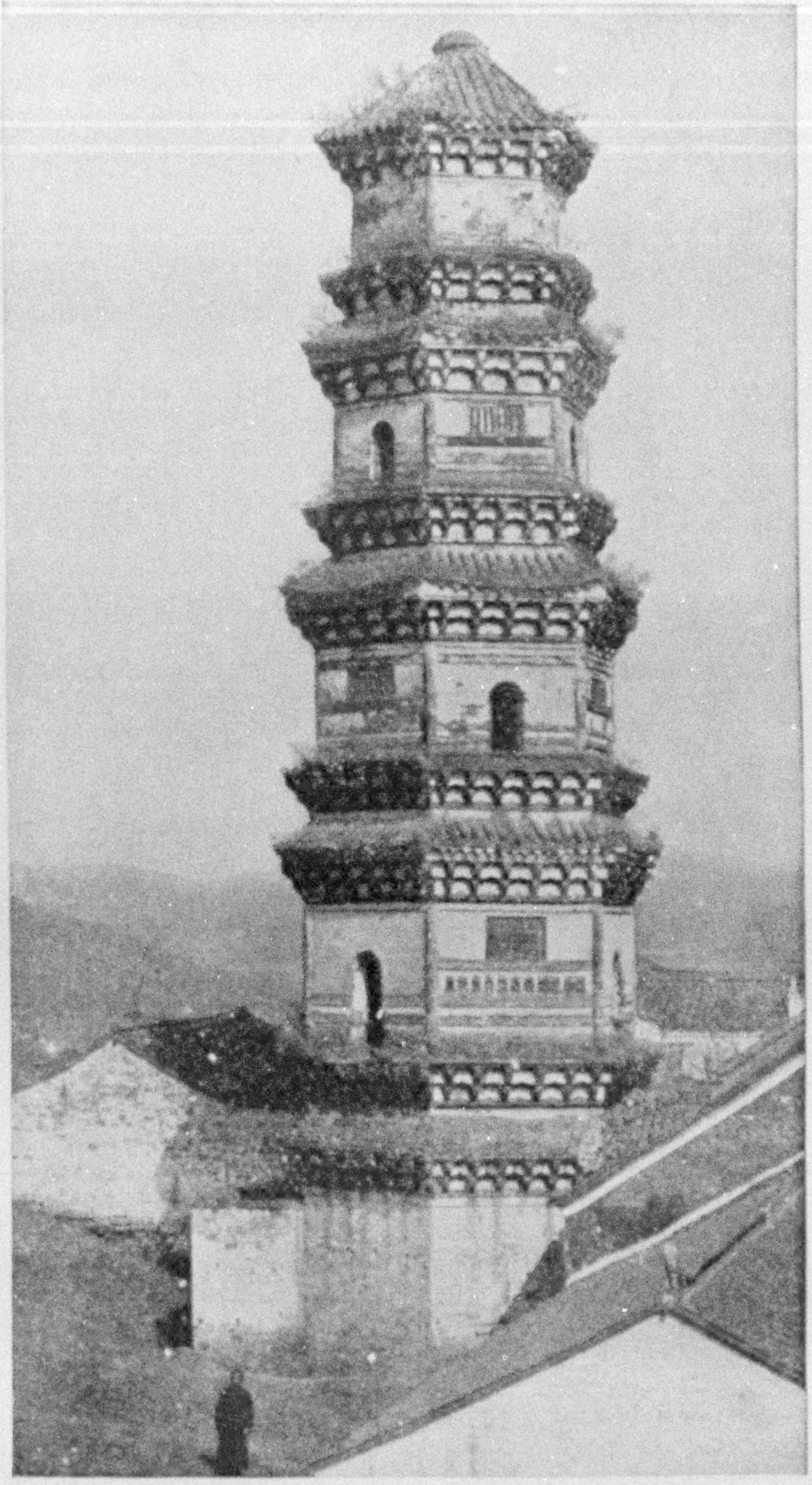


Photo by W. Perceval Yetts

A TYPICAL PAGODA AT WU-HU IN ANHUI

Note the trees and shrubs growing on the pagoda. To Chinese the pagodas begin to appear as landmarks of a stage of civilization to be discarded.

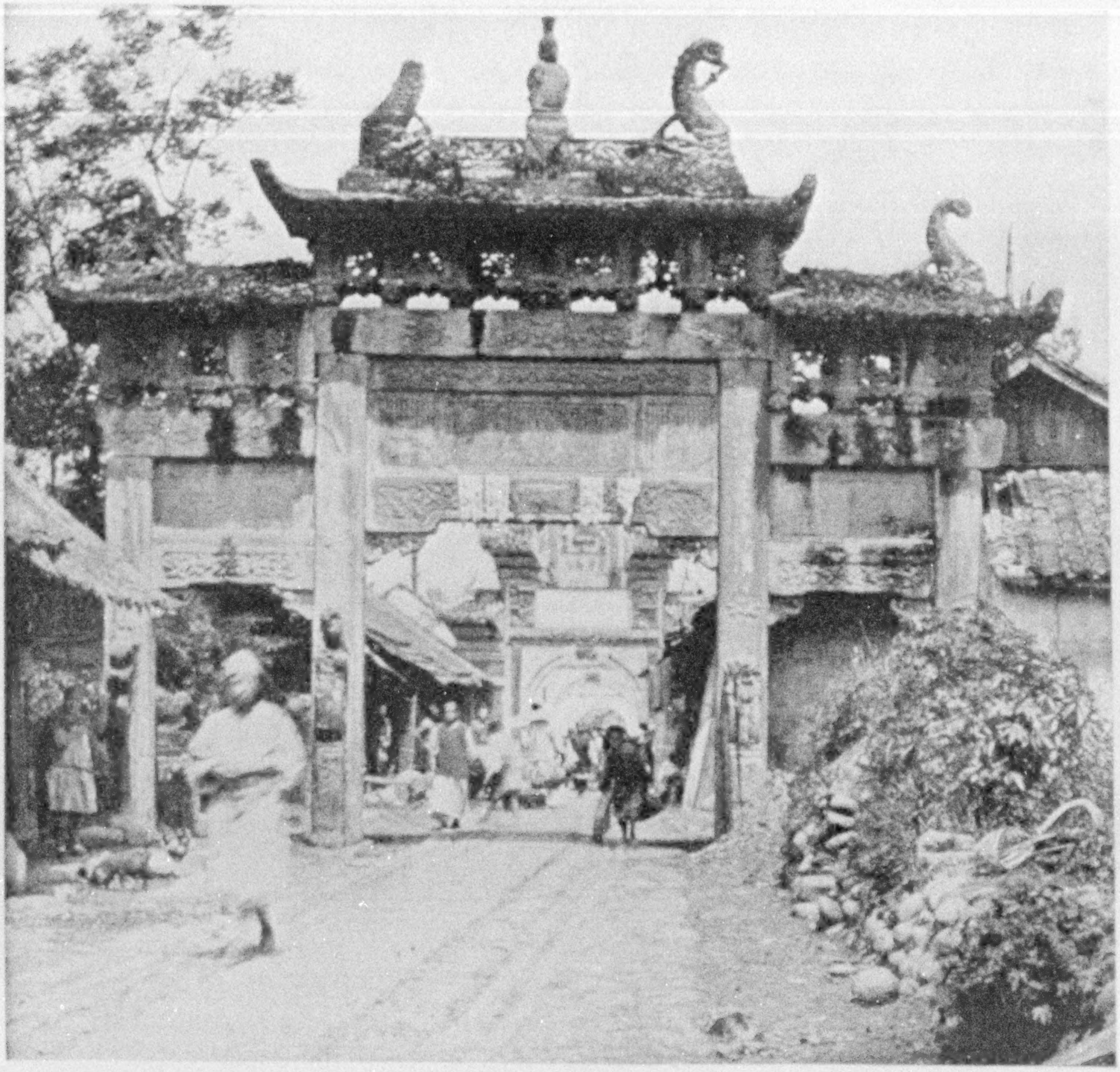


Photo by A. T. Granger

ROW OF ARCHES (P'AI-LOUS) ERECTED TO THE MEMORY OF WIDOWS WHO REFUSED TO MARRY A SECOND TIME: NOTE THE PHŒNIX (SEE PAGE 1000)

the past, like some of China's most ancient bridges, may be seen and realized today. In this her canals and bridges are unlike forgotten cities and capitals once their contemporaries, and unlike China's centers of art and learning, only fragments of whose buildings remain.

The wonder inspired in the breast of the traveler who visits China's vast remains of abandoned capitals, extensive temples ranged in successive courts and on terraces of the mountains, its pagodas, p'ai-lous, bridges, and canals, is equaled by the awe inspired by the silence and splendor of the tombs of China's emperors. The tombs of the kings of the "Six Kingdoms" in Shantung, though now only earthern pyramids terraced with little fields, have the air of the Pyramids of Egypt.

The Ming tombs, near Peking, are the most famed in our day, perhaps, because they are relatively in a good state of preservation and are accessible to travelers. They are approached through the five-arched stone p'ai-lou already mentioned (see page 1006) and by an avenue of stone animals nearly 2 miles in length (see pages 1007-1011). The sacred buildings are placed on the southern slope of the mountains and nearly inclosed by their encircling spurs.

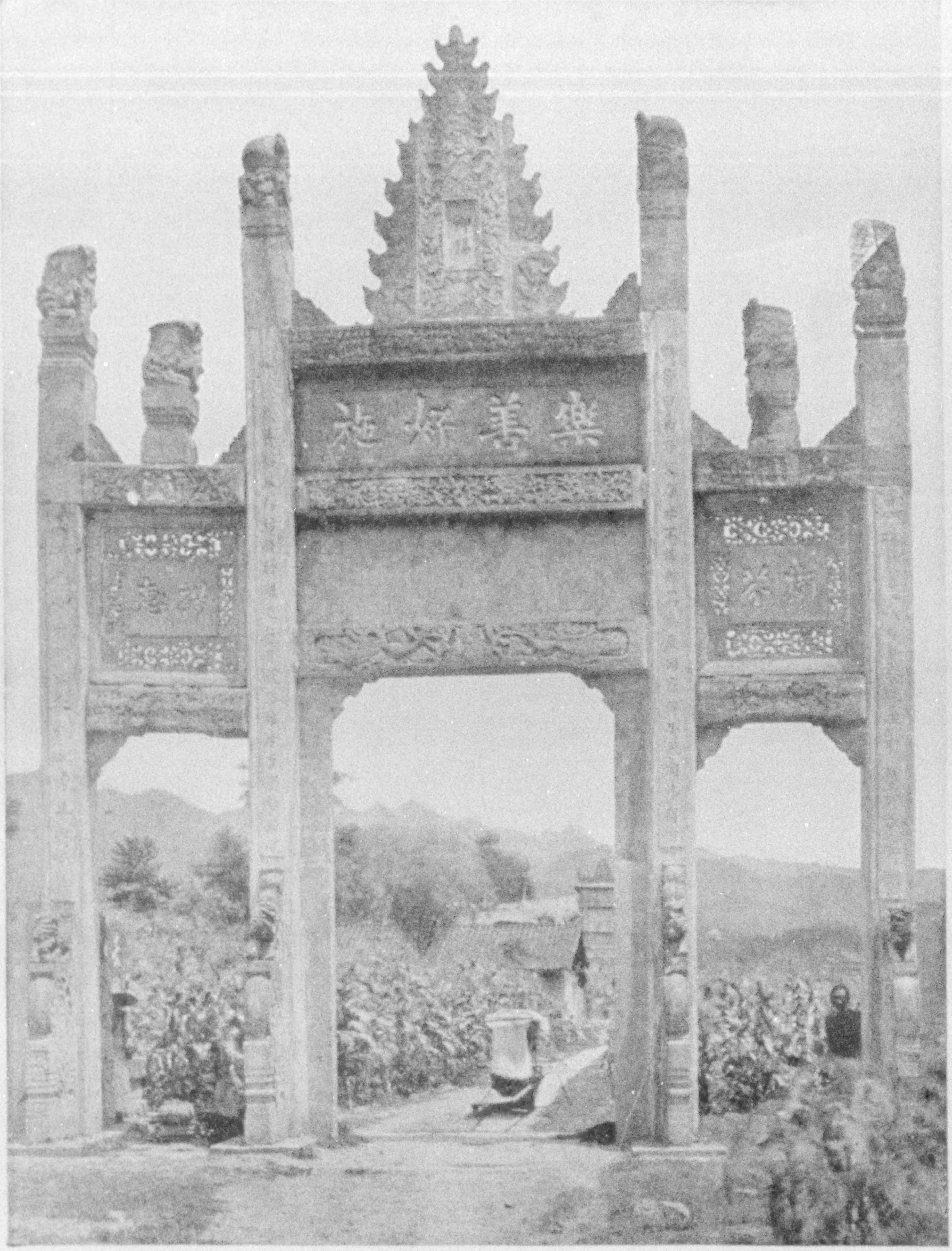


Photo by E. H. Wilson, Arnold Arboretum

A MEMORIAL ARCH (P'AI-LOU) OF OLD GRAY SANDSTONE, ERECTED IN HONOR OF A VIRTUOUS WIDOW: WESTERN CHINA

In every part of China these commemorative arches abound. They are erected at great cost in tribute to faithful virgins or devoted wives, symbolized in Chinese legend and art by the fabled phœnix that, having once selected her mate, never changes.

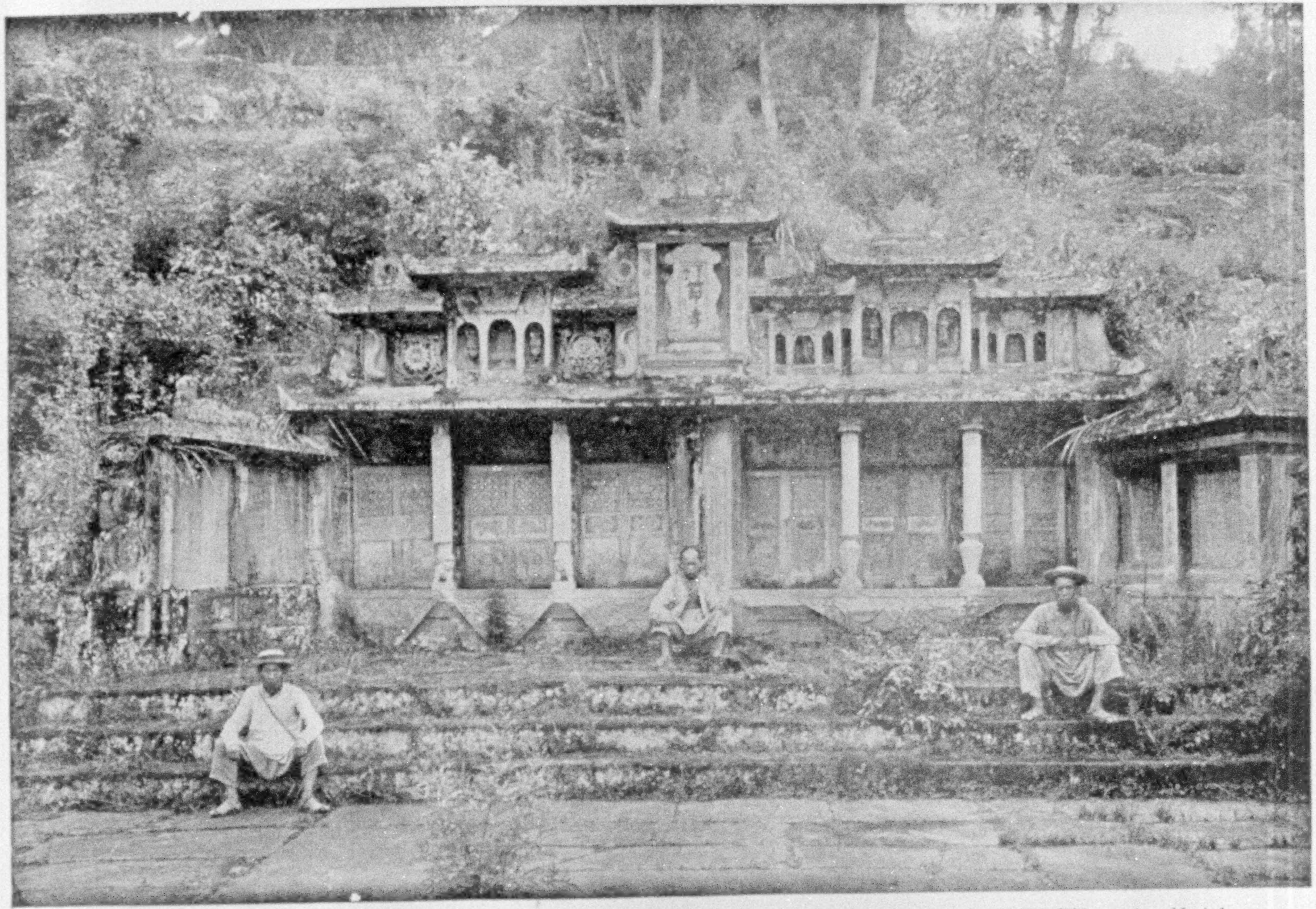


Photo by E. H. Wilson, Arnold Arboretum

THE TOMB OF TWO WEALTHY MEN (FATHER AND SON), WITH VERY ORNATE MURAL SCULPTURING: WESTERN CHINA

China is a country of practical immortality, where, in a sense, men never die and tombs are the habitations of the living. What their tombs have meant to the Chinese can best be comprehended when it is remembered that this is the people of ancestral worship, where the desecration of a tomb is the most terrible and heinous of all offenses.

XUM

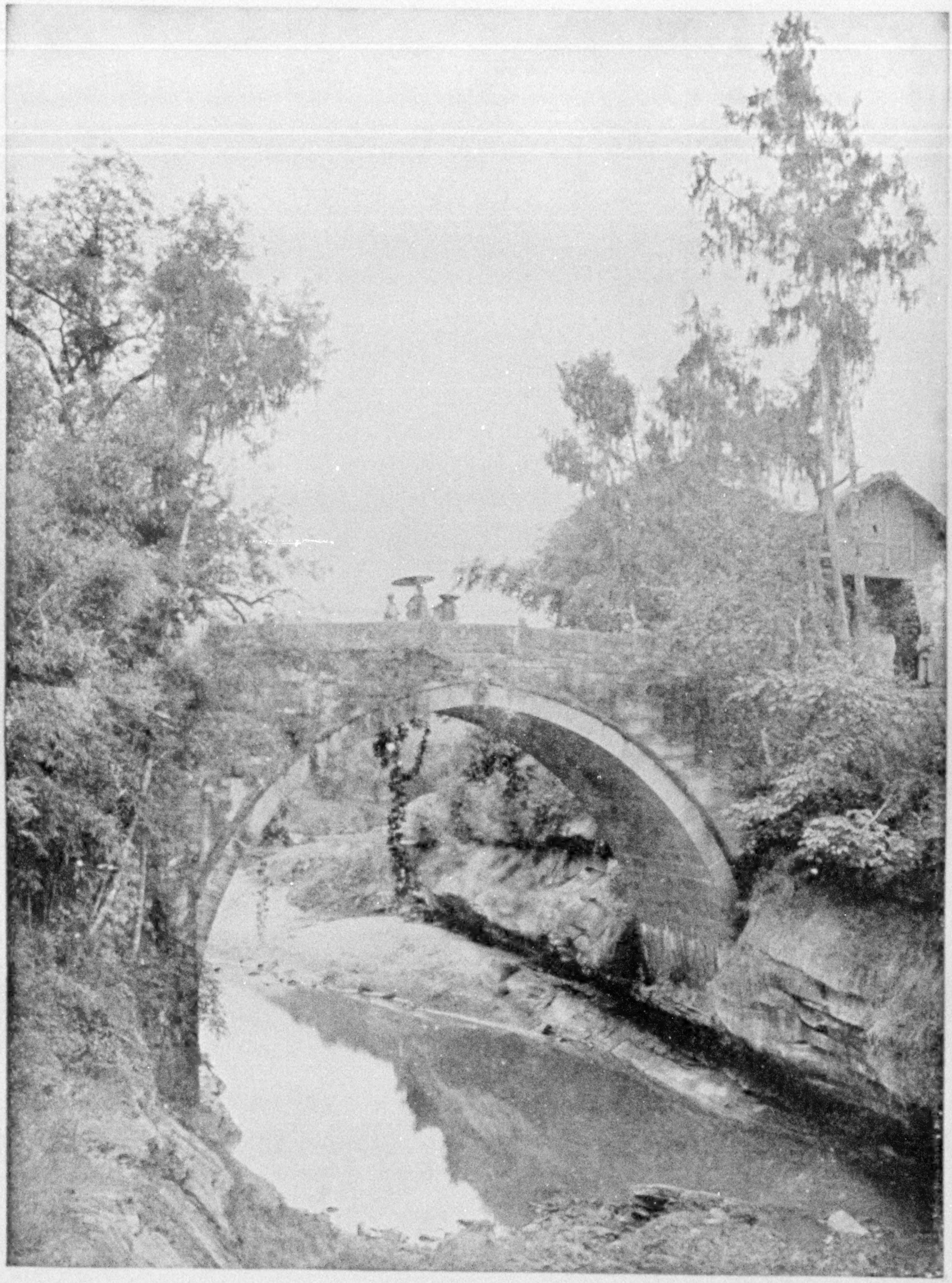
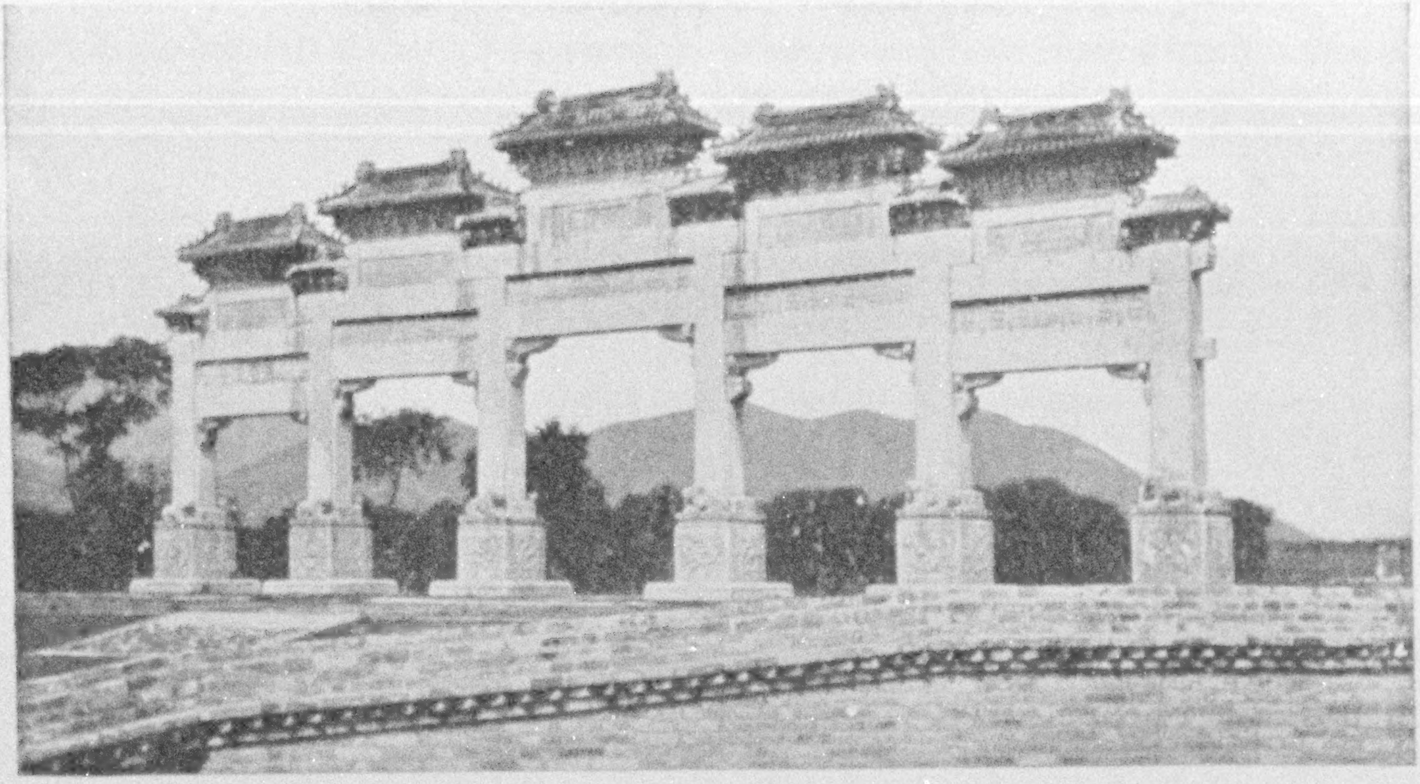


Photo by E. H. Wilson, Arnold Arboretum

A CHARACTERISTIC CHINESE BRIDGE, WITH CYPRESS, BAMBOO, AND PISTACIA CHINENSIS

Among China's most durable monuments are her bridges, the greatest display of which is perhaps along the Grand Canal. A spectator has described their various forms as "hump-back, horse-shoe, spectacle, camel-back, and needle-eye." Like the pagoda, it is one of the frequent objects that, as a background in Chinese scenes, served the occidental artist and engraver in conveying to the peoples of western countries the first impressions of China. China has bridges and remains of bridges with an antiquity of 2,000 years and more (see pages 1000-1001).

XUM



THE FIVE-ARCHED P'AI-LOU AT THE ENTRANCE TO THE "HOLY WAY," IN THE VALLEY OF THE MING TOMBS (SEE TEXT, PAGE 1000)

"There is no other similar heirloom of architecture in China that can equal it in workmanship or design. The carving on its towering façade and the base of each of its six columns and springers, each representing a solid marble slab 10 to 25 feet long, are truly regal, and only surpassed by the celebrated 'Altar of Heaven' at Peking."—Photo and note by Arthur J. Lowell.

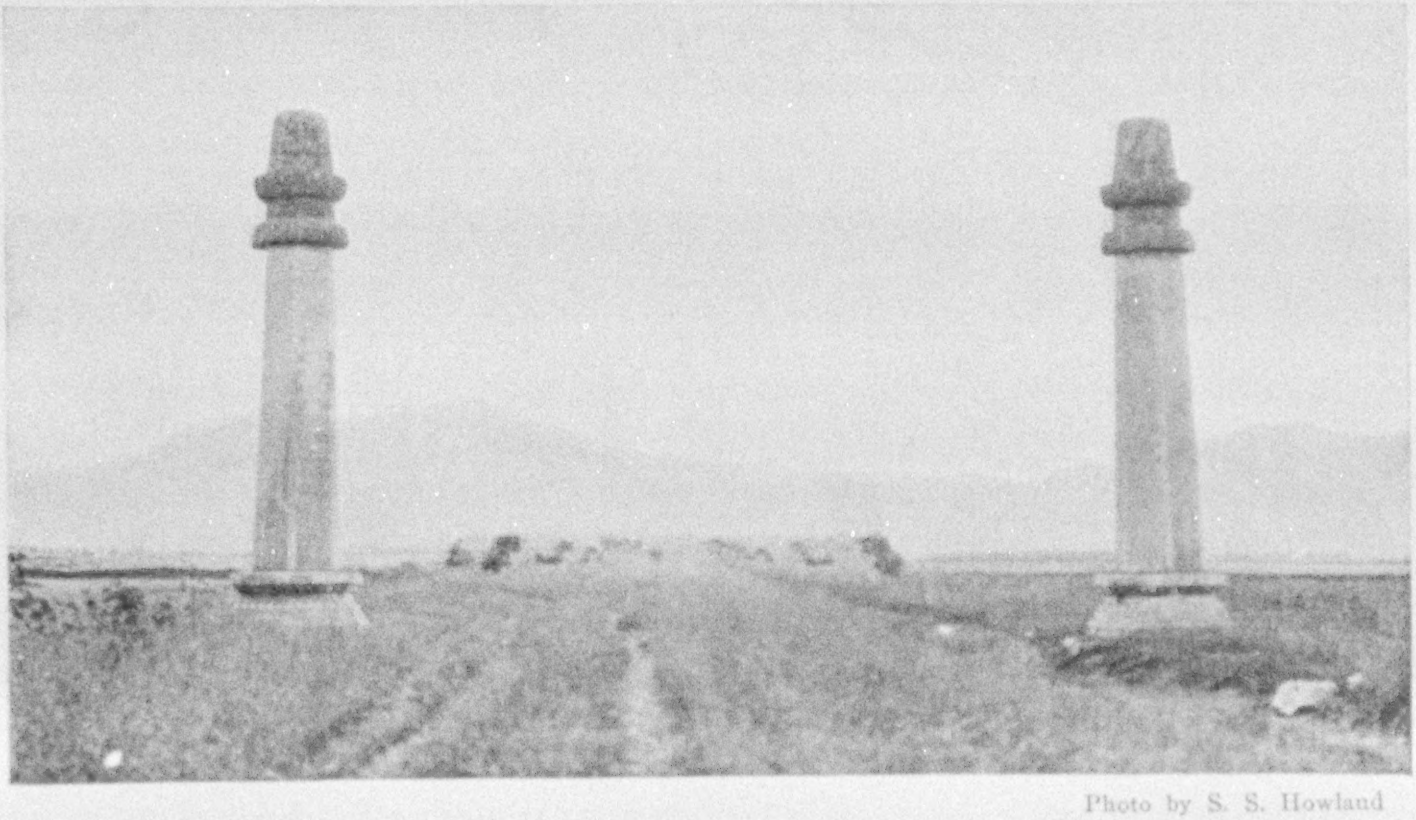


Photo by S. S. Howland

PILLARS ALONG THE HOLY WAY: THE MING TOMBS

The avenue of marble animals can be seen in the central background

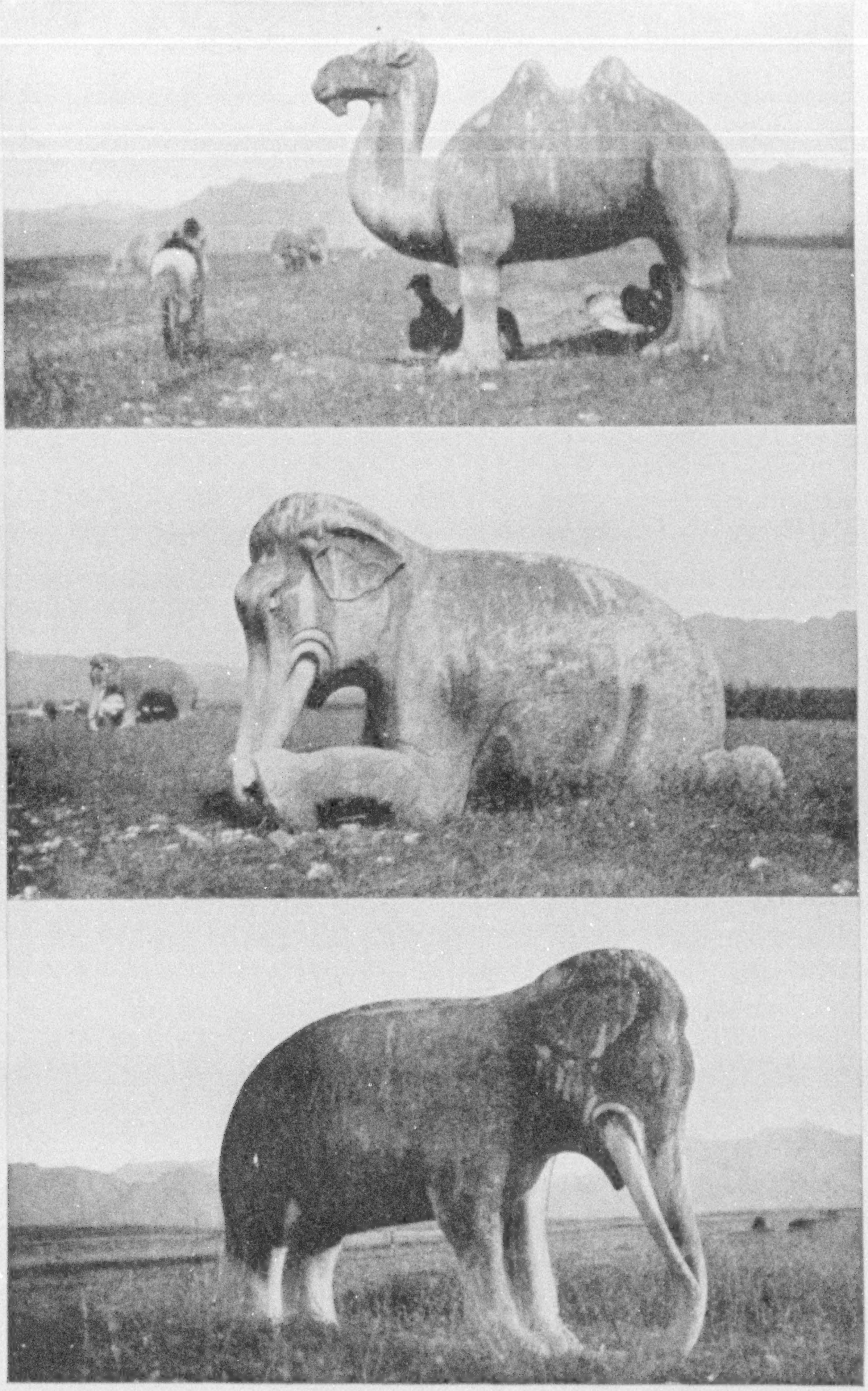
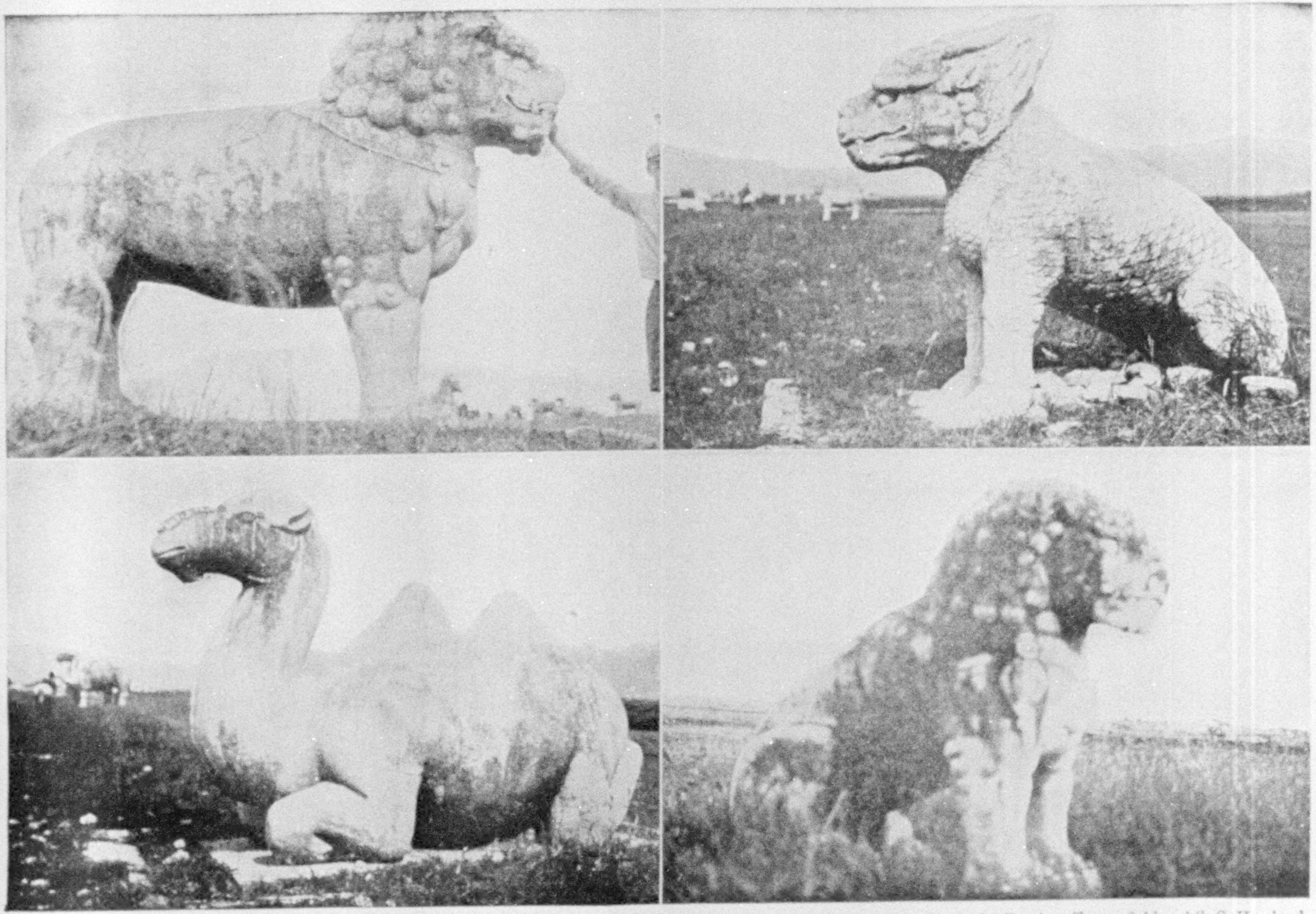


Photo by S. S. Howland

STANDING CAMEL AND ELEPHANTS; THE MING TOMBS

"The animals that stand sentry on either side of the Holy Way, as you pass from the great five-arched p'ai-lou to the tombs beyond, are left to subsist upon desert dust and a barren despoliation, where once grew trees of a dozen varieties and all the greenery of the Flowery Kingdom. These animals are the delight of every tourist that has ever visited Peking, but if another generation of tourists are permitted to admire them, with no restraint upon their privileges, they are doomed."—First two photos and note by Arthur J. Lowell.

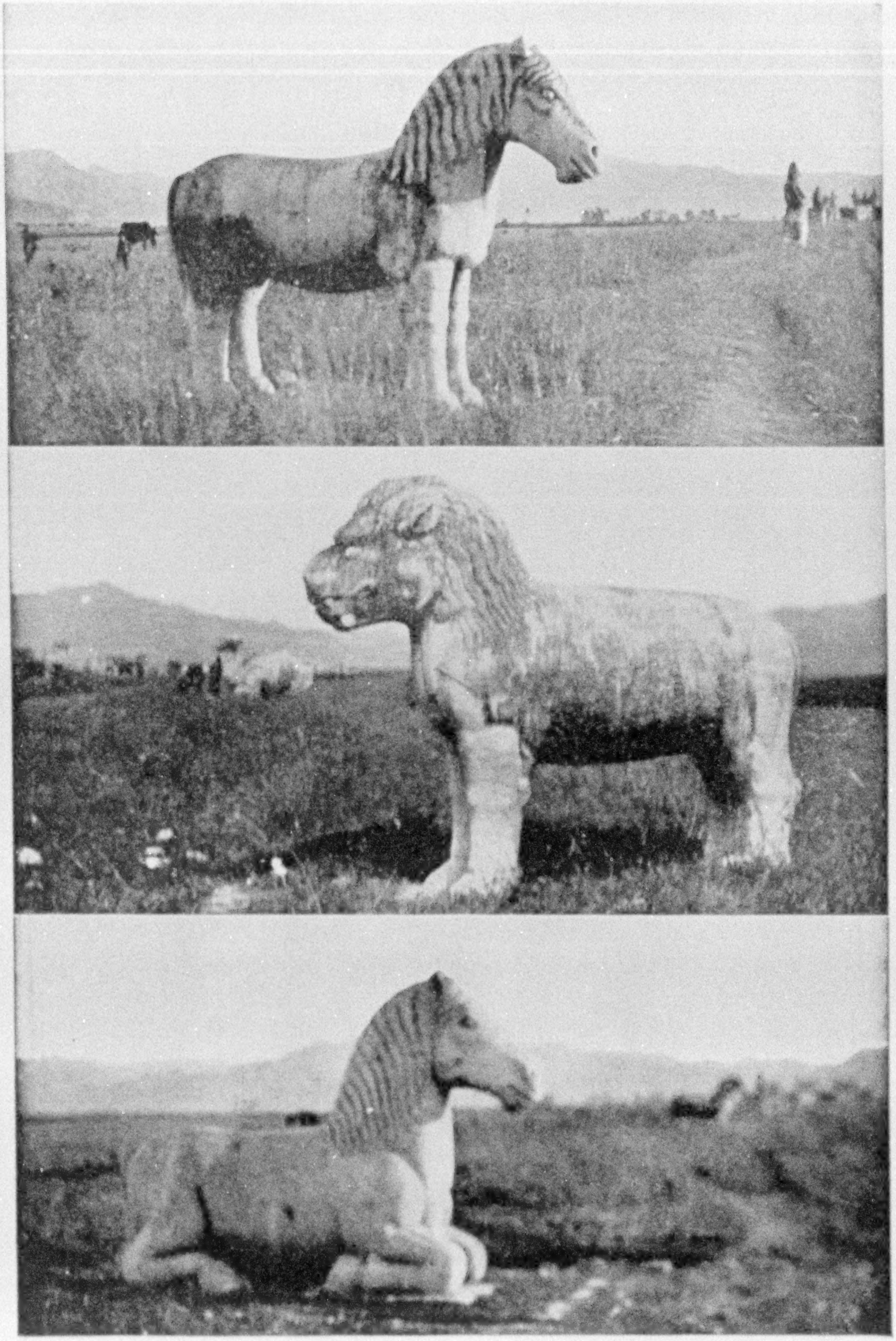
XUM



Photos by William Downs and Percival Tattersfield

Photos by Percival Tattersfield and S. S. Howland

KNEELING CAMEL, LIONS, AND FABULOUS ANIMAL: THE MING TOMBS



Photos by Arthur J. Lowell and S. S. Howland

STANDING HORSE, STANDING LION, KNEELING HORSE: THE MING TOMBS

XUM

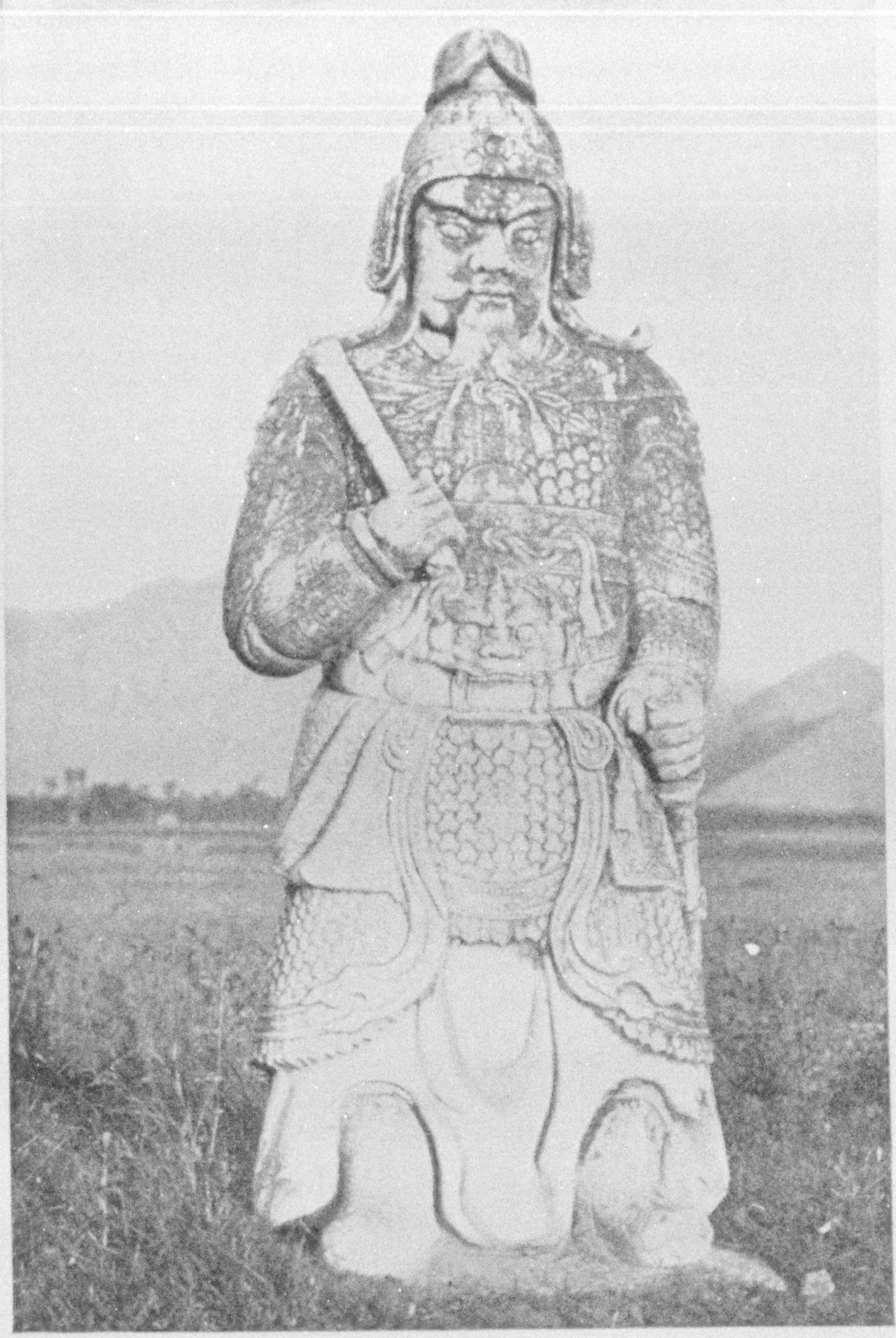
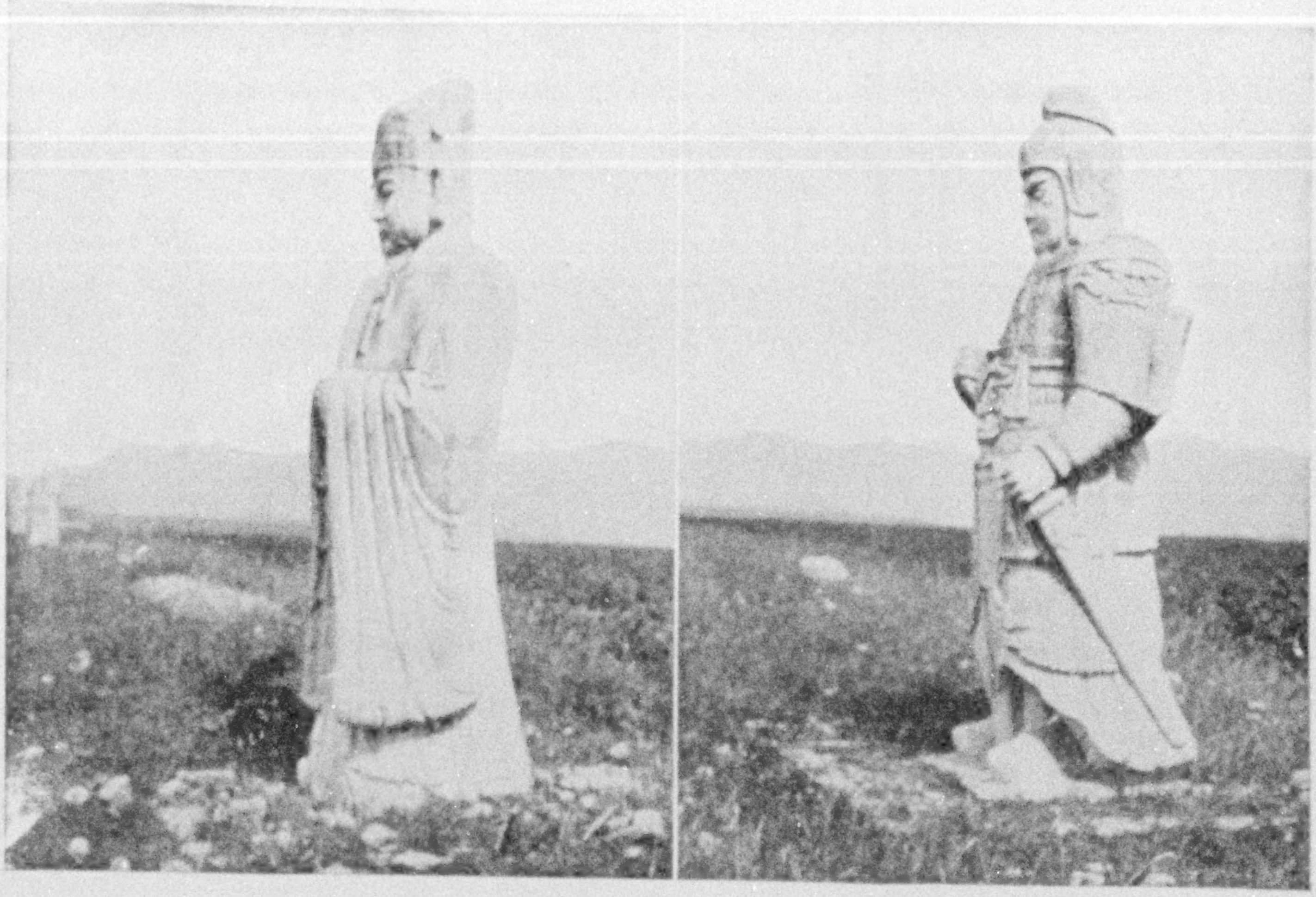


Photo by S. S. Howland

AN ANCIENT SOLDIER: THE MING TOMBS

The place has an inspiration to all travelers. In front of the tomb of Yung Lo there is a sacrificial hall that is one of the largest buildings in China, and is perhaps only exceeded in dimensions by the T'ai Miao, or ancestral temple of the Manchus, attached to the Forbidden City, Peking.

The Mings were great tomb-builders. They revised the ancient law fixing the



Photos by Percival Tattersfield

ANCIENT SAGE

ANCIENT SOLDIER

Two prominent figures in the avenue of marble animals leading to the Ming Tombs

height of graves for all classes. By its provisions graves may range in height from 4 feet for the common people to 16 feet for officials of the first rank. This was a reduction in height of graves from previous times. The Mings thought the matter very important, and this can be readily understood from the fact that in China the dead have from the remotest times received at least imperial consideration on an equality with the living.

China is a country of practical immortality, where, in a sense, men never die and tombs are the habitations of the living. What their tombs have meant to the Chinese can best be comprehended when it is remembered that this is the people of ancestral worship, where the desecration of a tomb is the most terrible and heinous of all offenses.

In the matter of tomb-building, the Emperor of the "Three Kingdoms," 220-265 A. D., greatly exceeded the Mings. He ordered his son to build for him 72 tombs, so that his enemies would not know which contained his tablet. The achievement may be noted of another ancient emperor who constructed his tomb and then built, peopled, and garrisoned a city near by for its protection. Perhaps the Chinese, who have performed the greatest of engineering feats, have surpassed the Egyptians, Persians, and Greeks in this direction also.

Older than these, and what may be called the one shrine in all China green with the devotion of the people, is the tomb of Confucius in Shantung. Here worship continues through the ages, under the patronage of all dynasties, since the fifth century A. D., when the Emperor Kao Ti set the example of imperial sacrifice there.

As time went on the different dynasties neglected the tombs of their predecessors, so that now the tombs of the Manchus are the best specimens of mausolea in China.

The Manchus followed the Chinese custom and law in respect to their ancestors. Solemn juniper forests inclose their sepulchers, which are approached through magnificent p'ai-lous and are

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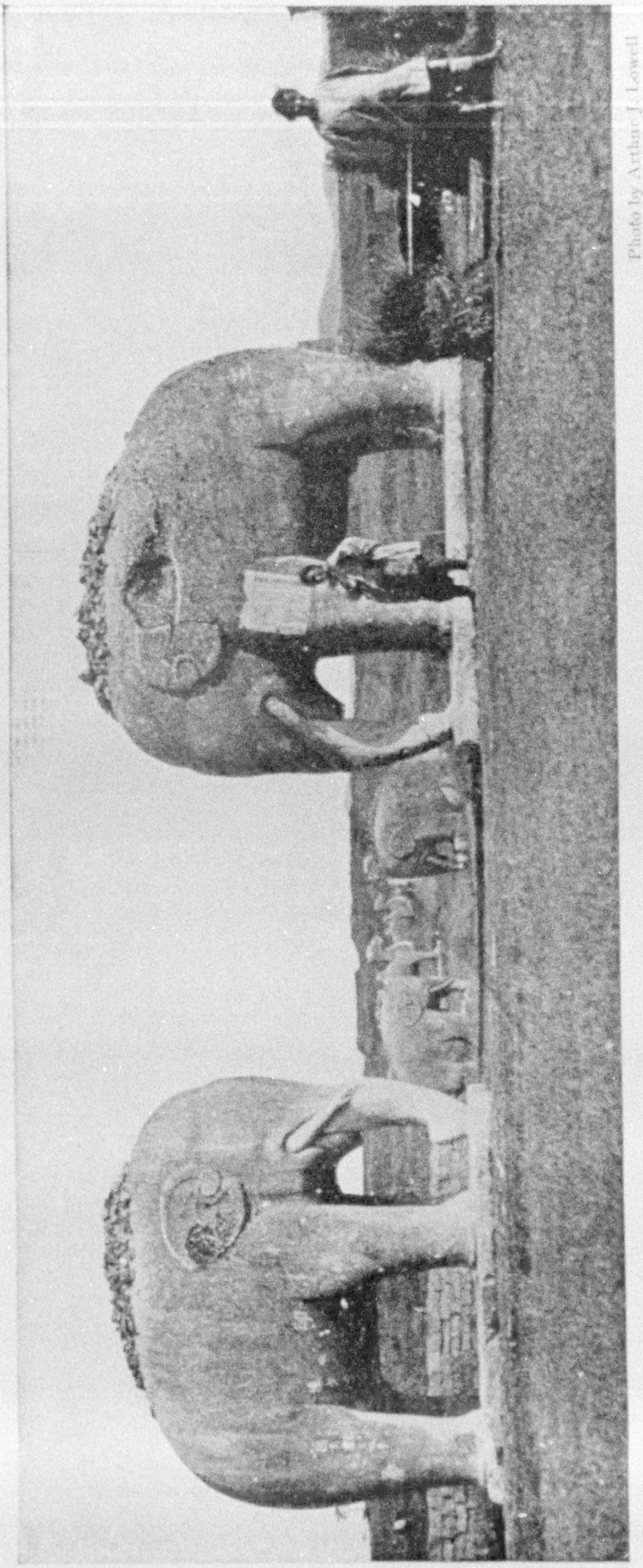

Photo by Arthur J. Lowell

NANKING: ONLY TWO OF THE MING EMPERORS ARE BURIED HERE, WHILE THIRTEEN ARE BURIED IN THE VALLEY OF THE MING TOMBS NORTH OF PEKING (SEE PAGES 1000-1011)

preceded by stately buildings. There are no less than five imperial Manchu burial places. The original is at Hsin-king, eastern Manchuria, and is called the Yung Ling. Two are at Mukden and two in the region of Peking.

THE FOREST OF TABLETS

The most widely distributed and most numerous of all monuments in China is the tablet called by the Chinese "Pei." Architecturally insignificant, it is yet to the historian the most valuable and to the antiquarian the most satisfactory of all. It is the kernel within the nut of Chinese archæology, commemorating every kind of deed, doing honor to deity, fulfilling the offices of the library, preserving history, and directing the wayfarer.

The usual form and structure of the tablet is that of a single slab of stone, with its crest of the heads and curved backs of four dragons and mounted on the back of a tortoise carved from a separate stone (see page 1014). Three hundred of these stone tablets in the Hall of Classics at Peking preserve the authorized texts of the Chinese classics.

To Christendom the most interesting and famous of the tablets of China is the Nestorian at Hsi-ngan. It gives in 2,000 Chinese characters, only one of which is illegible, a record of the earliest known Christian mission in China, and is dated A. D. 781. It has

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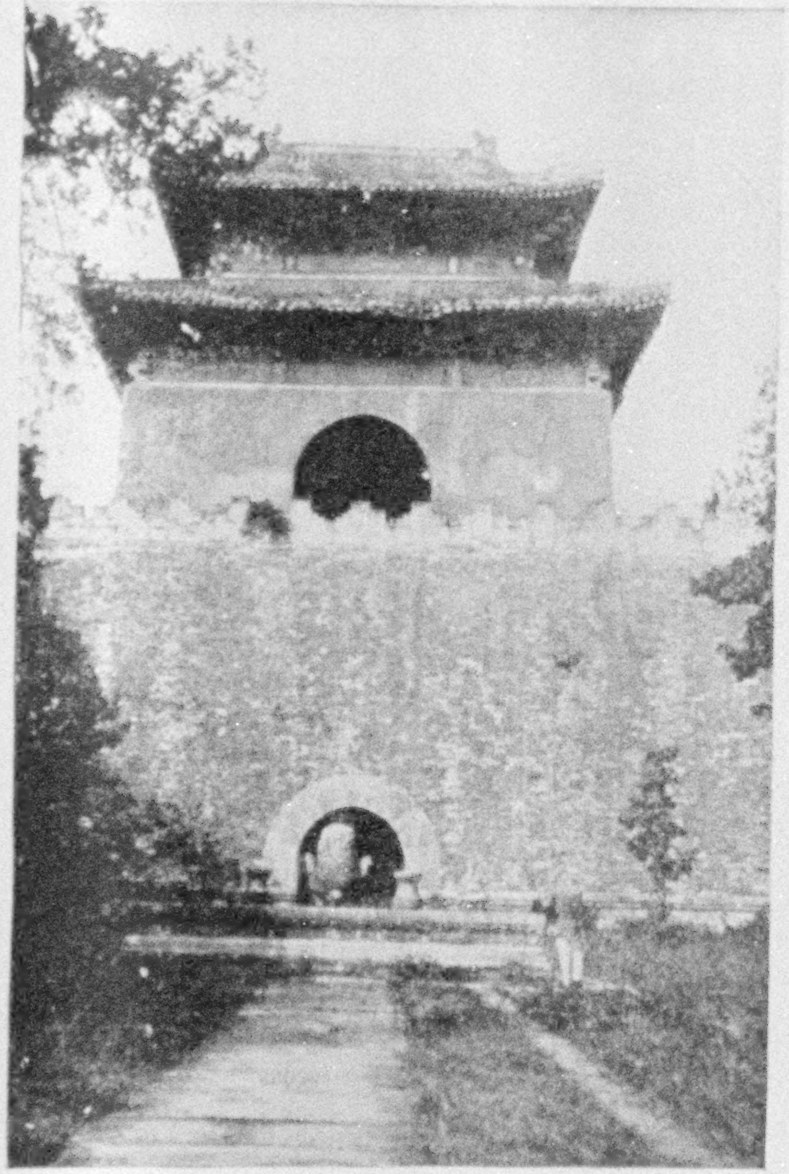

Photo by Arthur J. Lowell

TOMB OF THE EMPEROR YUNG-LOH, TO WHICH THE AVENUE OF ANIMALS LEADS (SEE PAGE 1002)

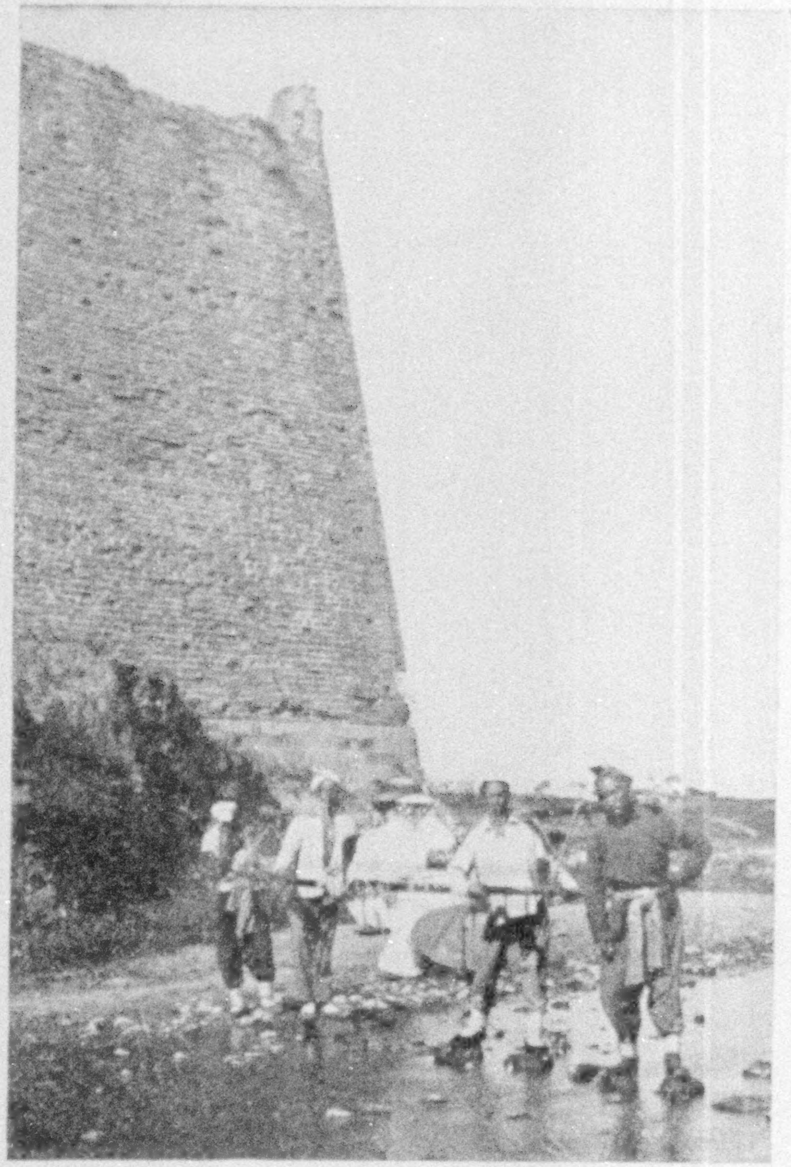

Photo by S. S. Howland

A BUTTRESS OF THE OLD WALL OF CHINA

To the Great Wall all other monuments of China, and for that matter of the world, are as pygmies to a giant. It is by far the most extensive and formidable single structure ever devised by man (p. 1023).

XUM

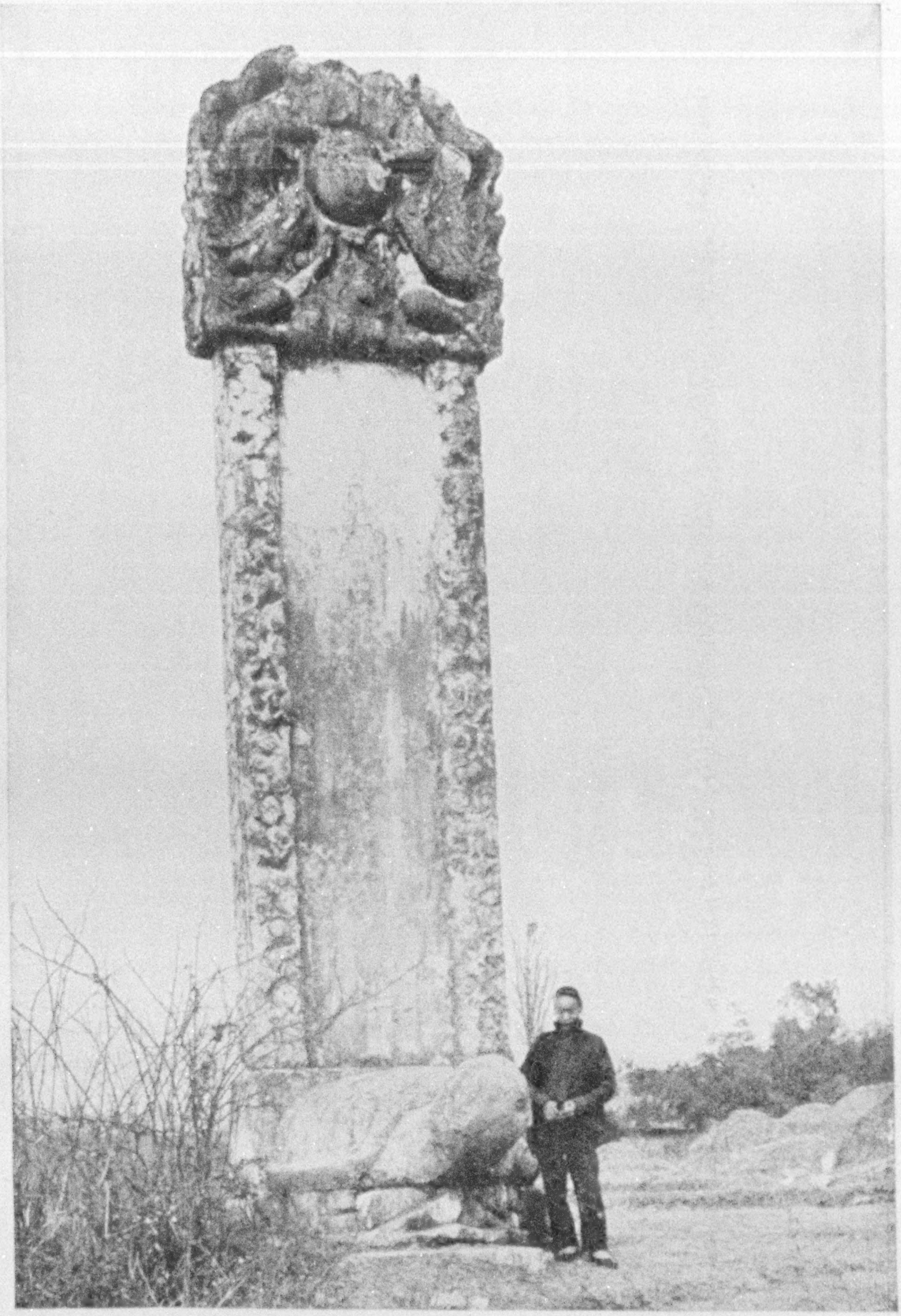

Photo by E. H. Wilson, Arnold Arboretum

TURTLE STONE, 35 FEET HIGH, A FINE EXAMPLE OF THE MOST NUMEROUS OF ALL MONUMENTS IN CHINA, THE "PEI"

These tablets greet the traveler at every yamen, temple, mountain pass, by the roadside and tomb, etc. (see page 1012).

Architecturally insignificant, it is yet to the historian the most valuable and to the antiquarian the most satisfactory of all China's monuments. It is the kernel within the nut of Chinese archæology, commemorating every kind of deed, doing honor to deity, fulfilling the offices of the library, preserving history, and directing the wayfarer. The usual form and structure of the tablet is that of a single slab of stone, with its crest of the heads and curved backs of a tortoise carved from a separate stone.

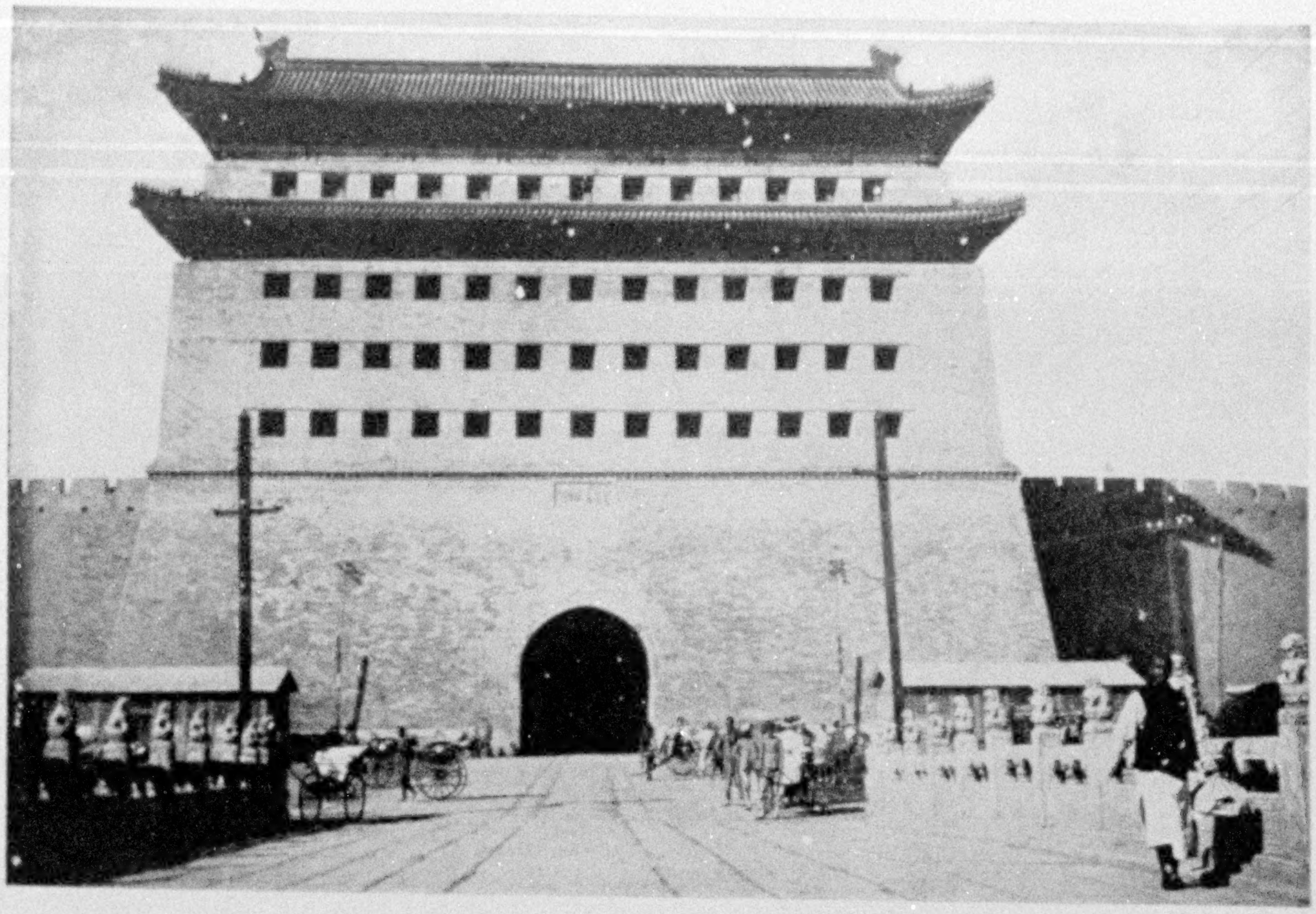

Photo by S. S. Howland

CH'IEN MEN; THIS IS THE PRINCIPAL GATE OF THE NINE GATES OF PEKING; IT IS THE ENTRANCE TO THE FORBIDDEN CITY

been carefully treasured by Christian missionaries since the Christian church became aware of its existence through the Roman Catholic fathers, 1625 A. D.

Several years ago the governor of the province of Shensi, where it was found, placed it in the Pei-lin (Forest of Tablets), at Hsi-ngan, for protection against vandals. The Pei-lin is a collection of more than 1,400 historical records in stone, both pictorial and otherwise, running back 12 centuries, and the greatest collection in the country. Not less curious than the Nestorian tablet are the two tablets at Kai-feng, province of Honan, commemorating an ancient and now extinct Jewish colony at that place.

Tablets greet the traveler at every yamen (official residence), temple, bridge, mountain pass, by the roadside and tomb, and in the faces of walls where they are incorporated. In eastern China pavilions are built over them, while in the west of China they are framed in bricklike doors and are called "tao pei," or road tablets.

A curious tablet exists at Nanking to commemorate the visit there of the Emperor Kang Hsi and reproving the inhabitants for their extravagance and prodigality.

In Manchuria, near the Yellow River, is a tablet more than 18 feet high that is interesting, at this time of Japanese expansion on the continent, because of the fact that it mentions the Japanese by a nickname.

Another of interest is used to cover a well under the famous Golden Hill at Port Arthur. It records the fact that a Chinese envoy passed that point during the Middle Ages on a mission to the court of one of the Manchurian kings of the period.

Perhaps the latest tablets to be erected in connection with the imperial court are those in commemoration of incidents in the flight of the late Empress Grand Dowager and the Emperor Kuang Hsu to Hsian-fu in 1900. At Chu-yun-kuan, in the Nankou Pass, through which the court passed in its flight, the traveler is struck by a tablet over the gateway reading, "First Gate of the World"—this being the chief entrance to China from Tartary. But within the entrance of the

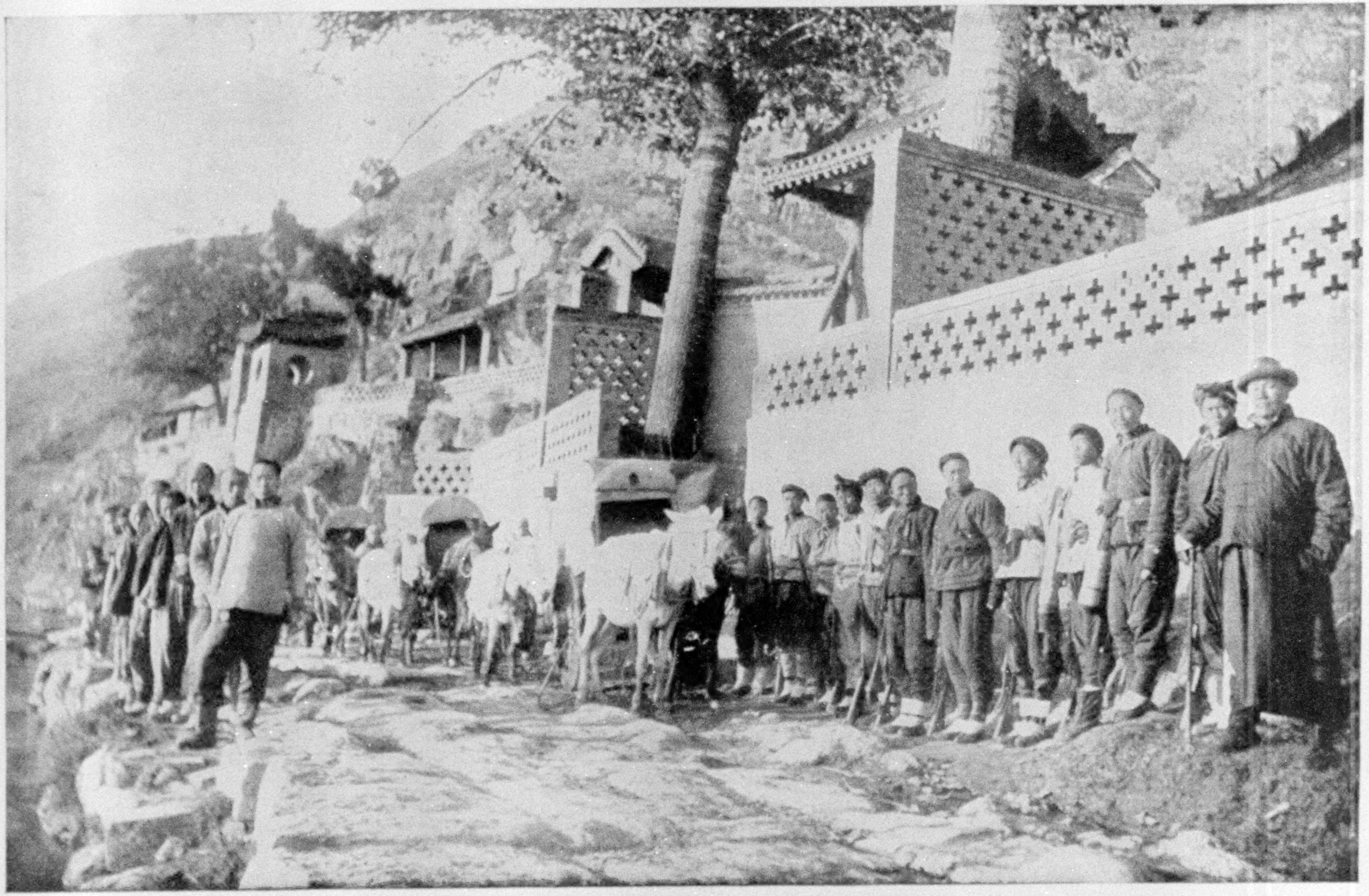

Photo by direction of Mr. Charles L. Freer

THE INTERPRETER, SOLDIERS, AND SERVANTS OF MR. CHARLES L. FREER WHILE AT LUNG-MEN, STUDYING THE ROCK TEMPLES

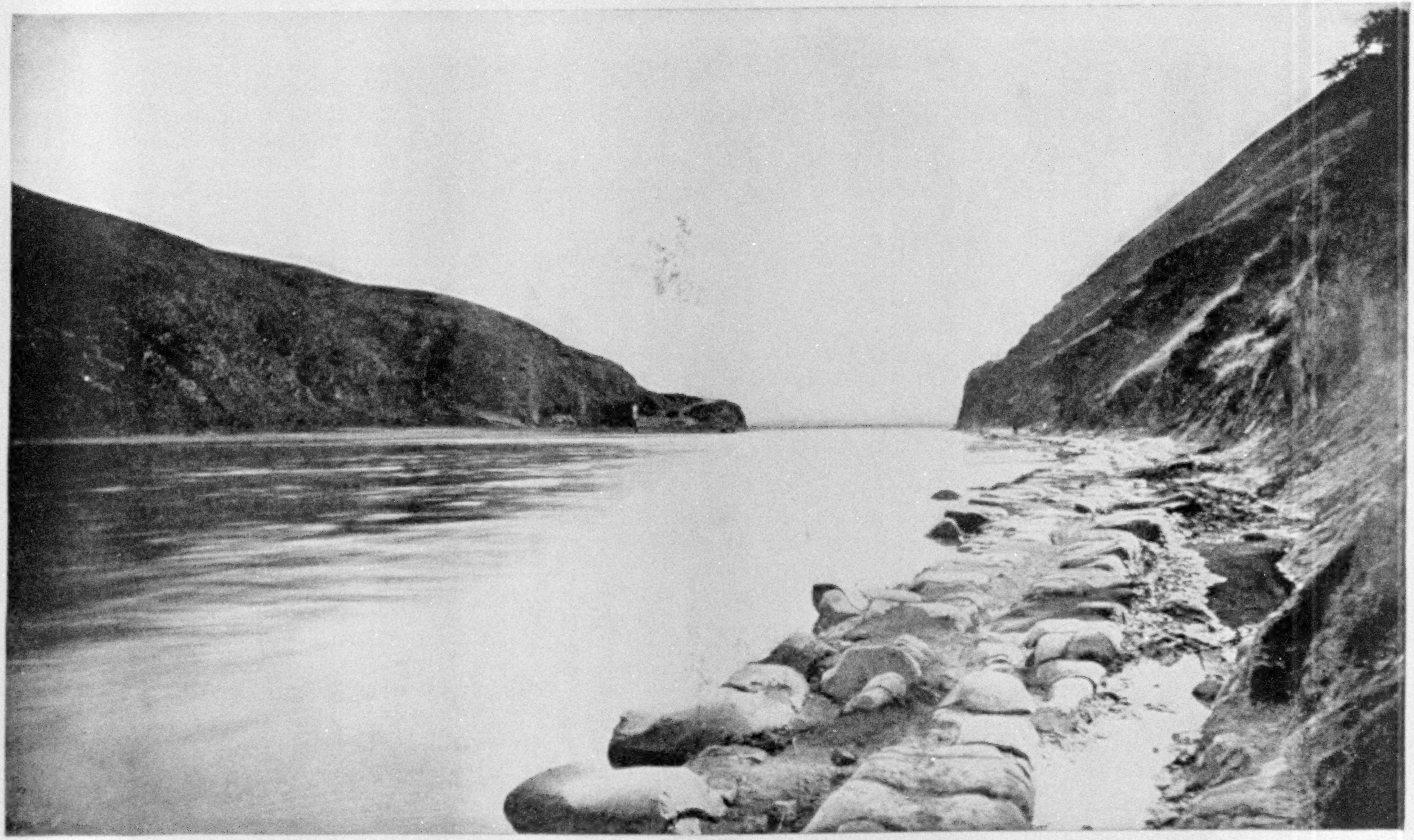

Photo by direction of Mr. Charles L. Freer

SCENE ALONG THE YI RIVER, WHOSE ROCK CLIFFS HAVE BEEN HONEYCOMBED BY THE QUARRIED TEMPLES SHOWN IN THE FOLLOWING PHOTOGRAPHS

Chinese archæologists say this limestone mountain was cut in two to make a passage for this river and to divert its waters from the Yellow River, called "China's Sorrow" because of the destructive nature of its floods

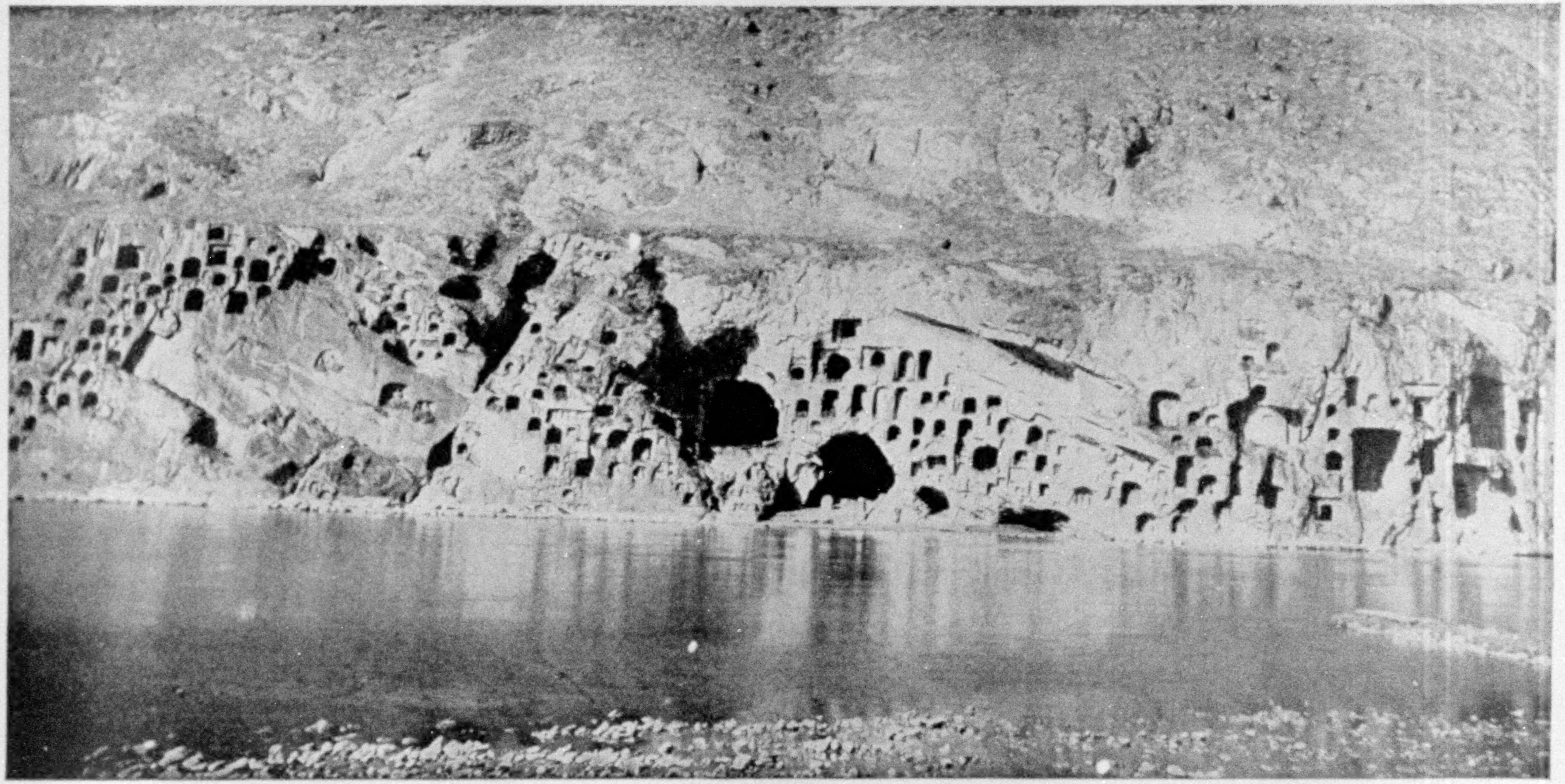

Photo by direction of Mr. Charles L. Freer

A PORTION OF THE ROCK CLIFF OF THE YI RIVER, SHOWING A FEW OF THE THOUSANDS OF TEMPLES AND SACRED RECESSES CARVED OUT OF THE ROCK AT LUNG-MEN

The most wonderful of Buddhist sculptures, and indeed of all known sculptures in China, are the rock-hewn temples of Lung-men in the province of Honan, 10 miles south of the city of Honan—a railway terminus. Its name means "dragon door". It is a channel for a river cut through a limestone mountain—an artificial defile which tradition says was cut by the Emperor Yu with the aid of a dragon.

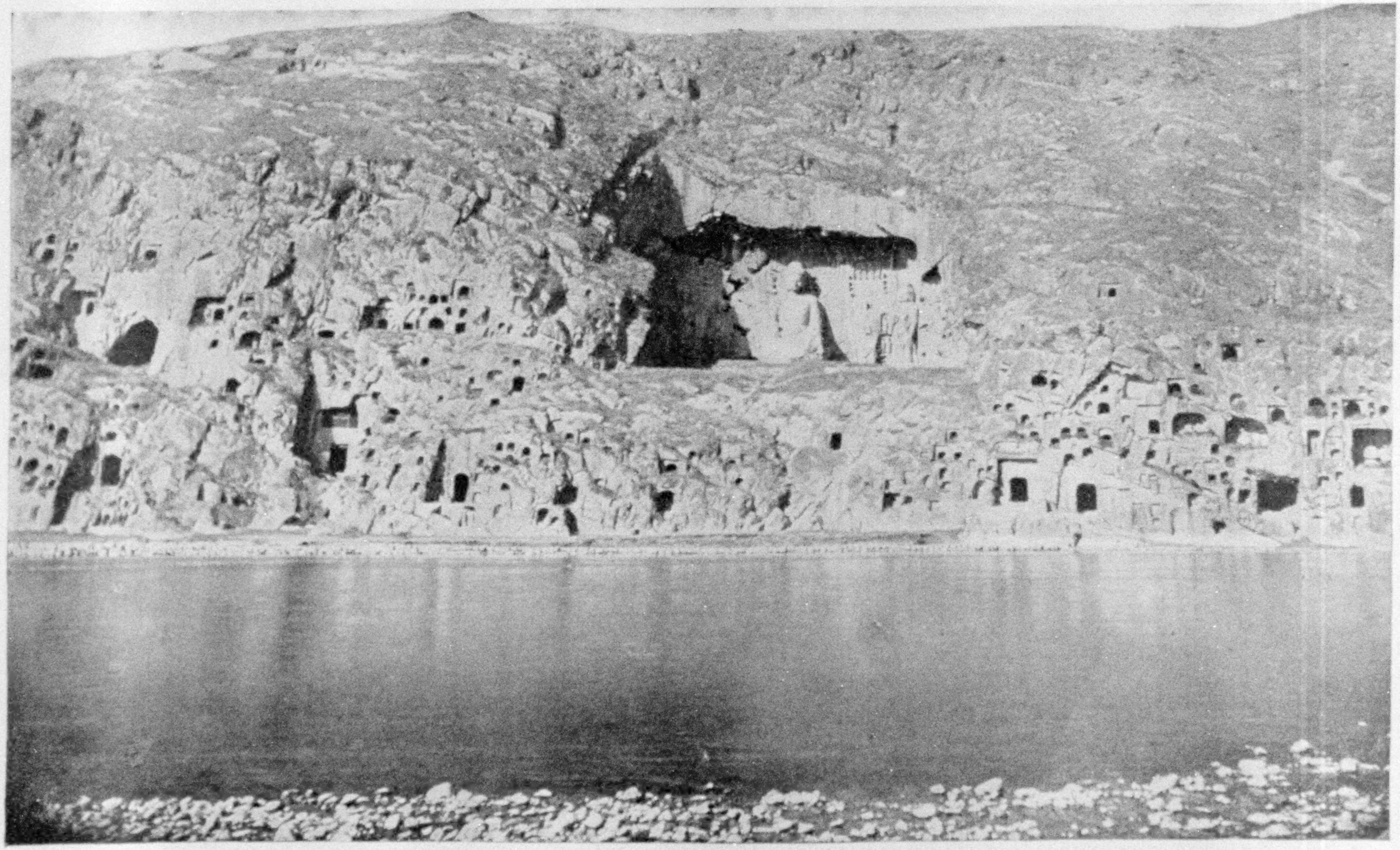

Photo by direction of Mr. Charles L. Freer

ANOTHER VIEW OF THE ROCK-HEWN TEMPLES AT LUNG-MEN

The huge Buddha and attendant figures in the central recess can be clearly seen. Many smaller figures and decorations in other recesses can also be discerned. "Here, in the seventh century, in the sides of the cloven range, wrought the sculptors, who, like the Greek masters of the chisel, remain unknown. Here the Chinese artists turned the precipitous cliffs into hundreds of quarried temples and sculptured recesses, peopled with religious figures in relief or detached."

pedestal of what was once a great pagoda here there are tablets bearing inscriptions in seven languages, some of the latter long since dead.

The historical value of the inscriptions in China has hardly begun to be realized. At Hangchau, one of the two cities which, according to a Chinese proverb, reconciles the soul to this world until Heaven is reached, there was, until recent years, an invaluable iron plate of the tenth century with an inscription recording the building of the wall of the city by the feudal Prince Chien, whose descendants still reside there.

But of all stone monuments in China valuable for the antiquity of their inscriptions, the stone "drums" in the Confucian temple at Peking are the most remarked. They are supposed to record the hunting exploits of King Hsuan, B. C. 827, making them more than 2,700 years old. The translations of their inscriptions are generally made from rubbings taken in the Sung dynasty—A. D. 960-1127—because the inscriptions are almost wholly illegible now, and only here and there can a character be traced.

THE FAMOUS ROCK TEMPLES

Just as universal as her temples, p'ailous, and buildings with imperial significance, and almost as universal as her tombs and tablets, are China's figure-sculptures. The Buddhist church, which has been the builder of most of the temples and pagodas, the maker of gardens, and the protector of flowers, trees, birds, and animals, has been the promoter of art and the inspiration of the most of China's sculptures.

Singularly enough, the most notable sculptures in China are in the rock walls of mountains and in caves. Rockhill, the American orientalist, describes one of these, a Buddhist colossus near Kwei-Kwa-cheng, northwest of Peking, and another near the city of Ning, in Kansu.

The largest and most notable colossus of Buddha in China known to occidentals is that described by S. Wells Williams. It is in Shensi, near the town of Pin, and is said to have been cut by an emperor of the Tang dynasty in the ninth century. It is hewn from sandstone so as to leave it in a cave. It is 56 feet high and covered with color and gilt. According to Williams, it "is lighted from above, after the manner of the Pantheon, a single round opening in the vaulting. Sixty feet over the rock temple rises a tiled roofing, and upon the hillside without the cavern are a number of minor temples and statues".

But no doubt the most wonderful of Buddhist sculptures, and indeed of all known sculptures in China, are the rock-hewn temples of Lung Men in the province of Honan, 10 miles south of the city of Honan—a railway terminus. Its name means "dragon door". It is a channel for a river cut through a limestone mountain—an artificial defile which tradition says was cut by the Emperor Yu with the aid of a dragon.

Here, in the seventh century, in the sides of the cloven range, wrought the sculptors, who, like the Greek masters of the chisel, remain unknown. Here the Chinese artists turned the precipitous cliffs into hundreds of quarried temples and sculptured recesses, peopled with religious figures in relief or detached.

There are thousands of figures among these sculptures, varying in height from a few inches to 50 or 60 feet. They show Indian influence and represent all the members of the Buddhist pantheon. A group which occurs with great frequency is that of Buddha attended by his two favorite disciples, Ananda and Kashiapa, and two Bobhisattwas. The Devarajas, Guardians of the Gates, are rendered with great power.

The only sculptures at this place not of Buddhist character are several bas-reliefs, which, in the opinion of the French orientalist, Prof. Chavannes, are representations of donors who have contributed to the extensions of this great decorative work. These afford an interesting study of costumes in China in the seventh century of our era.

The only other sculptures in China on a scale with the Buddhist images are the stone figures of men, elephants, camels, horses, and unicorns, notably at the tombs of the Mings and the Chings near Peking and Mukden. Those at Nanking are also well known (see pages 1006-1011).

XUM

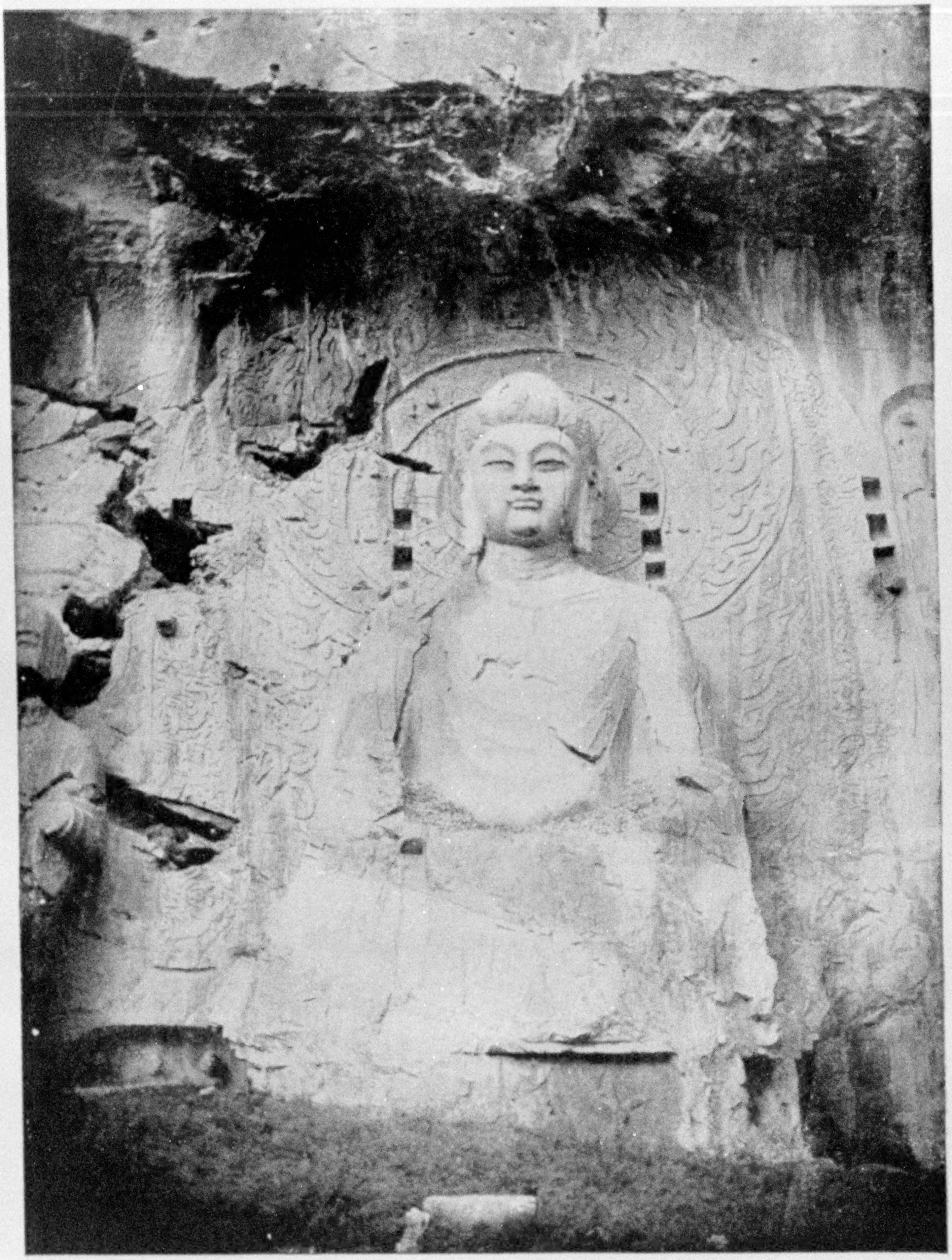

Photo by direction of Mr. Charles L. Freer

THE GREAT BUDDHA, OVER 50 FEET HIGH, IN THE CHU CHIAN FUNG TEMPLE: LUNGMEN (SEE ALSO PRECEDING PICTURE)

There are thousands of figures among these sculptures, varying in height from a few inches to 50 or 60 feet. They show Indian influence and represent all the members of the Buddhist pantheon.

XUM

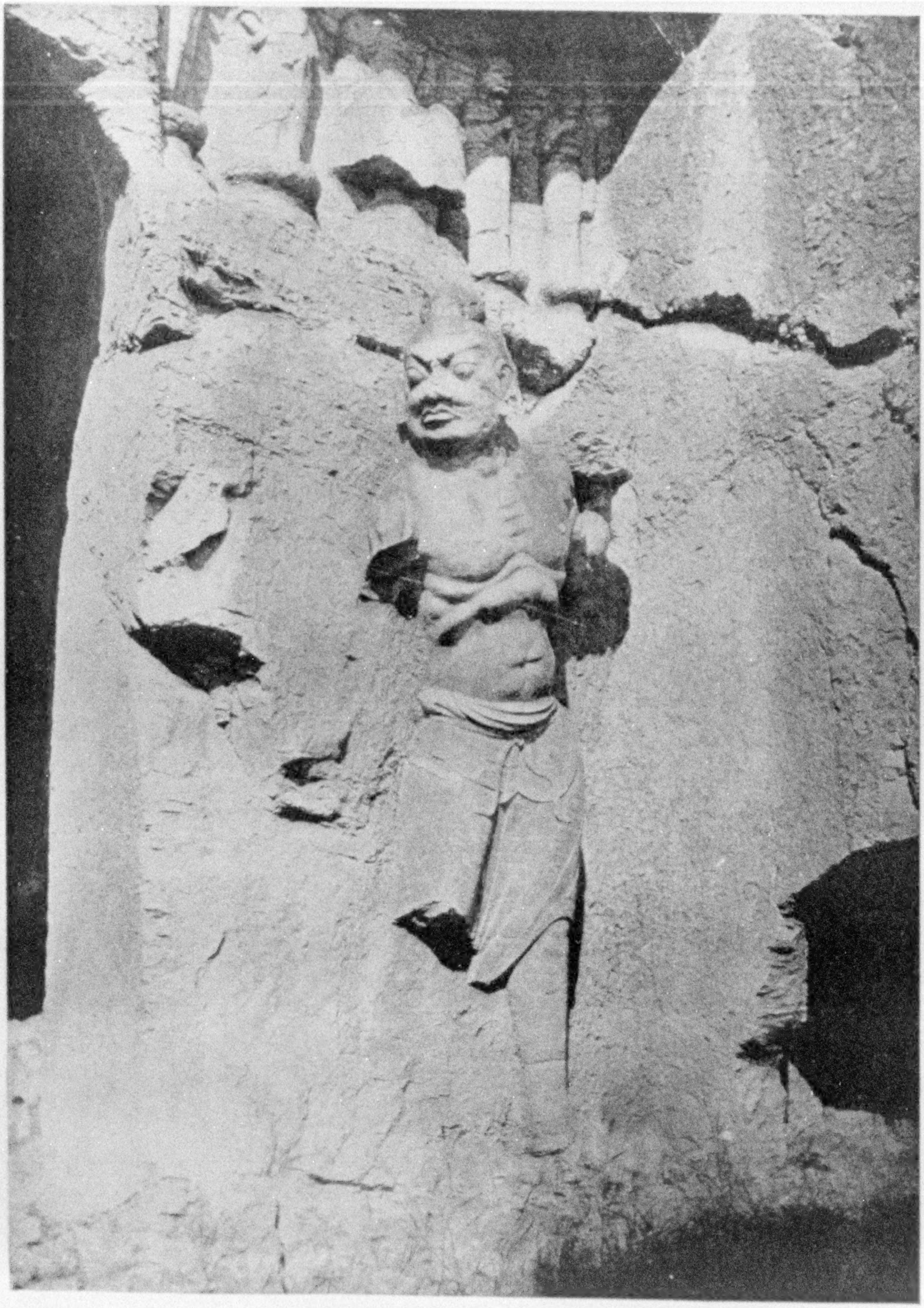

Photo by direction of Mr. Charles L. Freer

THE GUARDIAN TO THE TEMPLE OF NAN TUNG; LUNG-MEN

THE GREAT WALL OF CHINA

To the Great Wall all other monuments of China, and for that matter of the world, are as pygmies to a giant. It is by far the most extensive and formidable single structure ever devised by man. Built in the third century, it has never yet been surveyed, but is believed to have a continuous extent of 1,500 miles, to which must be added the extent of branch walls.

After 16 centuries it remains intact for hundreds of miles, a brick or dressed granite shell filled with earth and covered with an impervious paving of brick laid in lime, carefully drained. It is protected by crenellated parapet and fortress towers.

It seems to lie upon the mountains, spurs, and ridges like a great serpent. The wonder inspired in the breast of the traveler who visits China's other monuments, such as the vast and abandoned capitals, is that of a dead past. But he who stands upon the Great Wall, lifted to some airy peak, and there rocked by its sinuous undulation, sees the China of the third century living.

The Great Wall was built by the Emperor Shih to protect the peaceful inhabitants of the plains from the hill barbarians of Tartary, serving a useful purpose in defense, at intervals of time, for ages. The innumerable tablets and inscriptions which it bears, recording its construction and repair, would form a curious and instructive history.

Watch-towers dating from the third century still stand sentinel outside the Great Wall, while unnumbered hundreds of lesser antiquity stand guard on the imperial highways of all China. A chain of them extends from Mukden via Peking to Hsi-ngan, and thence to a point beyond the western end of the Great Wall.

Here is a story giving a glimpse of the place these picturesque objects have played in the lives of the Chinese: Nearly 2,700 years ago (781 B. C.) the Emperor Yu commanded that the beacons on all the watch-towers in the Empire be lighted, so that by the chagrin of the princes in rushing to the defense of the capital when there was no danger he might cause a smile to come over the face of one of his haughty beauties, Pao Ssu. Pao Ssu laughed.

However, one of the onlookers of this comedy was the Emperor's enemy, the hostile Duke of Hsin. Hsin regarded it as a favorable time to invade the kingdom of Yu and did so. The Emperor again ordered the beacons lighted, but the princes refused to respond. The capital fell, the Emperor was slain, and Pao Ssu was carried into captivity, where she strangled herself.

THE BURIED WEALTH OF CHINA IS BEYOND CALCULATION

One can only guess what may be the buried monumental wealth of China, a land in which so far no excavations for the purpose of discovery have yet been made. There must be innumerable objects of great historic and archæological value. For ages in central China, in regions subject to flood and to burial by alluvial deposits, antiquities have been dug up, the latest discoveries occurring where excavations have been made for railways. These include sculptured figures showing ante-queue fashions. About the middle of the last century 11 bells 2,000 years old were dug up in Kiangsi province, and are said to be in the Forbidden City.

When excavations were made in Peking for the Foreign Office buildings large hollow bricks were found 4 feet in length by 20 inches in width and 5 inches in thickness. They had a clear ringing tone when struck and were known to Chinese as "music-stand bricks". They were said to have originally come from the region of the Yellow River and to have been used as stands for musical instruments. But they are ornamented with a geometrical pattern and were probably used in friezes.

The extent of China's archæological relics is something that remains to be determined. From what the traveler can see, and the student as well, they appear to be immense, in keeping with the dimensions of her history.

There is probably nothing monumental in China that is older than the remains of her cities (unless it be her tombs) and nothing of more absorbing interest than the remains of her ancient capitals.

XUM

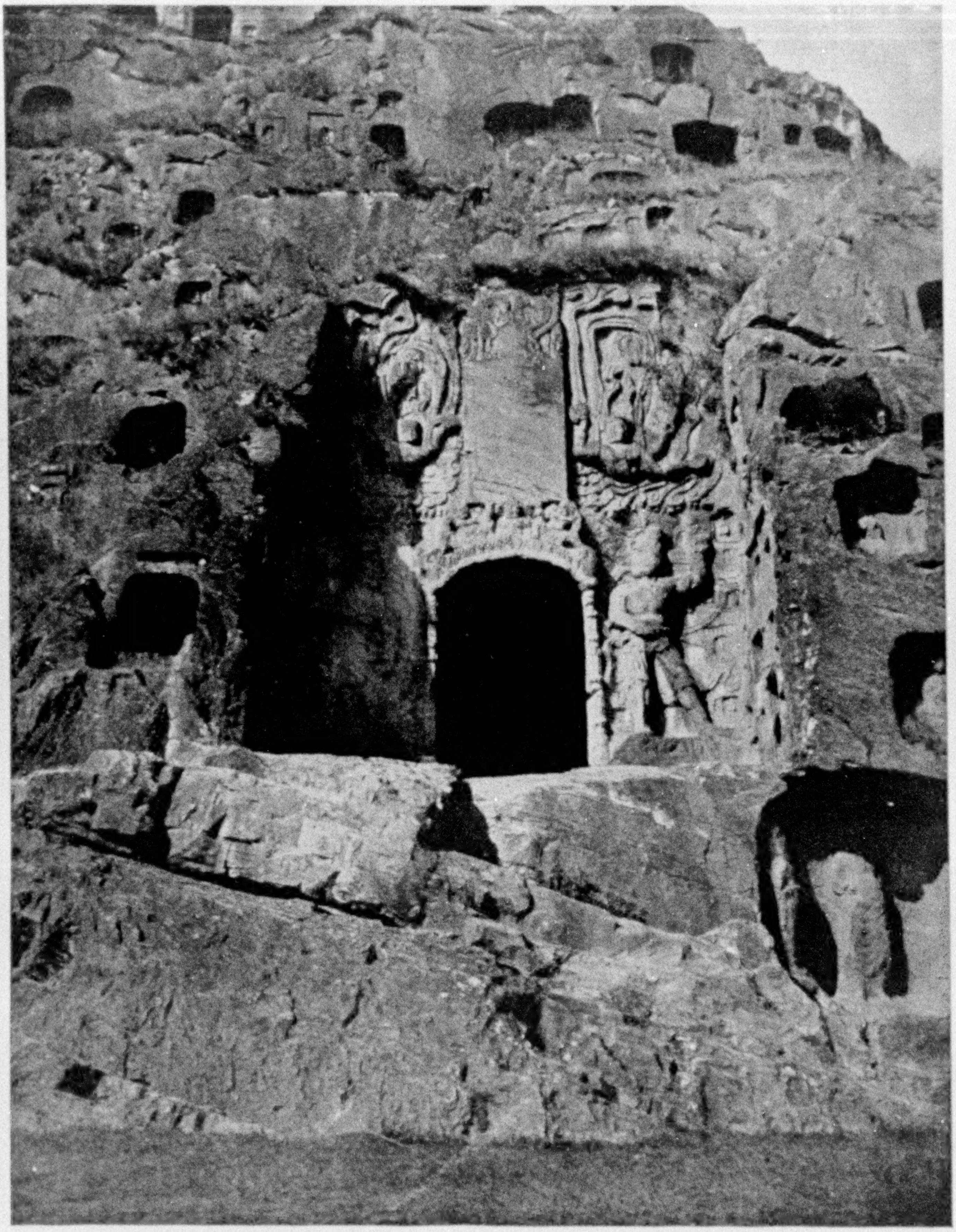

Photo by direction of Mr. Charles L. Freer

A PORTION OF THE CLIFF, SHOWING CARVED DECORATIONS AROUND THE ENTRANCE TO THE TEMPLE CHEIAN SHE-SU AT LUNG-MEN

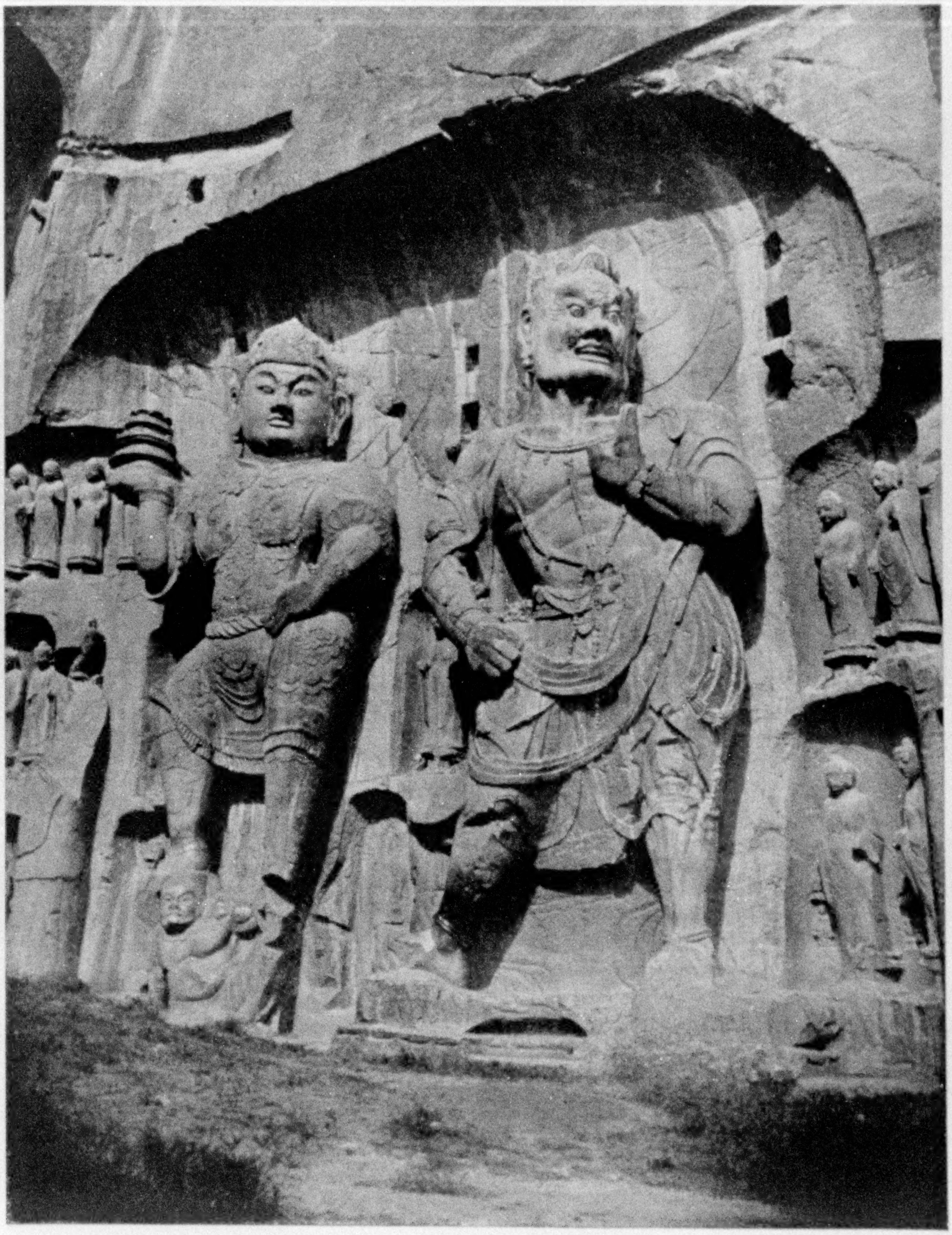

Photo by direction of Mr. Charles L. Freer

A CHARACTERISTIC CARVED GROUP: CHU CHIAN FUNG, LUNG-MEN

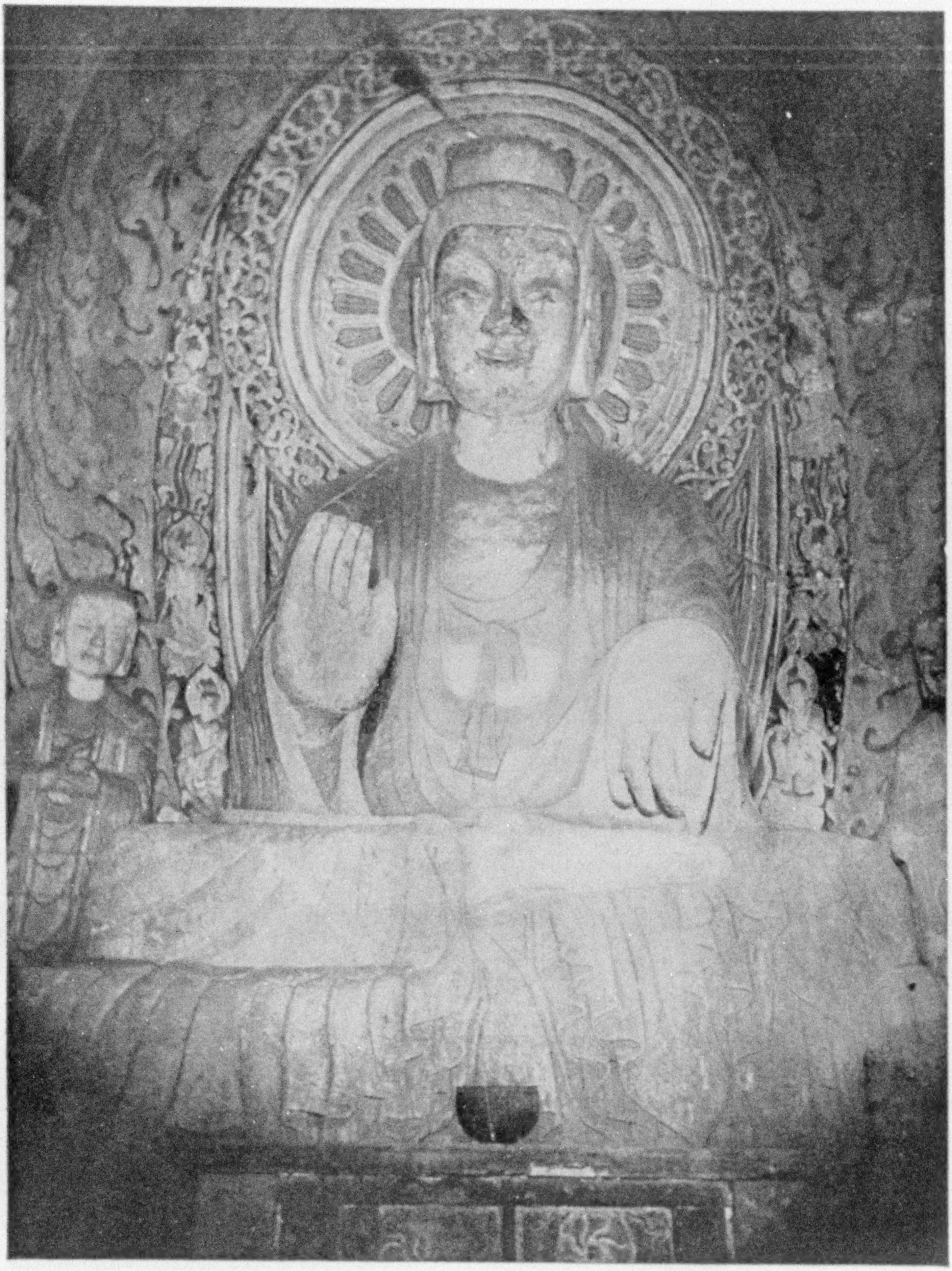

Photo by direction of Mr. Charles L. Freer

SEVERAL OF THE LARGEST TEMPLES ARE KNOWN BY THE ONE NAME, "PING YUNG TUNG": LUNG-MEN

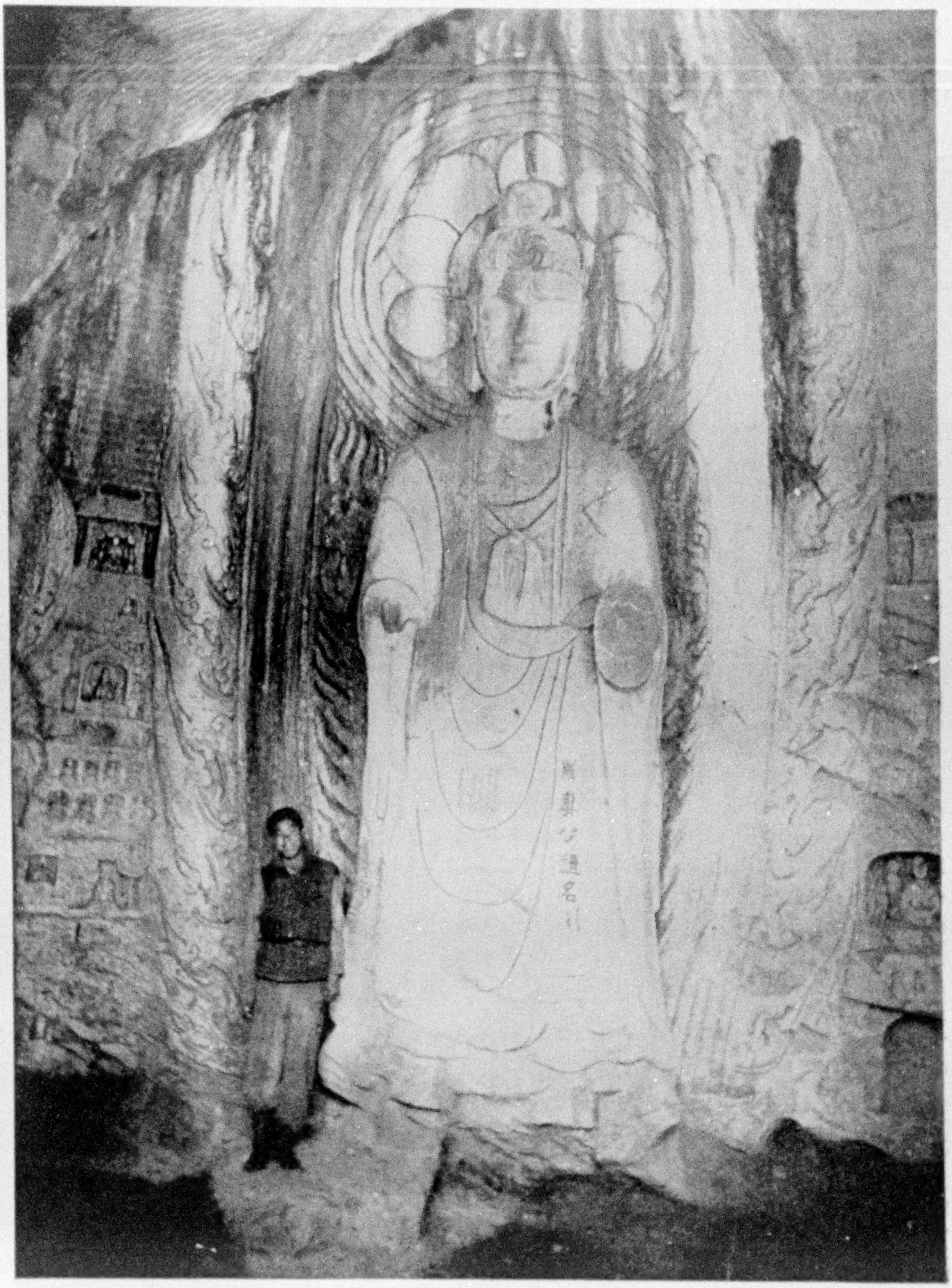

Photo by direction of Mr. Charles L. Freer

ONE OF THE LARGE FIGURES CARVED IN THE ROCK AT LUNG-MEN

XUM

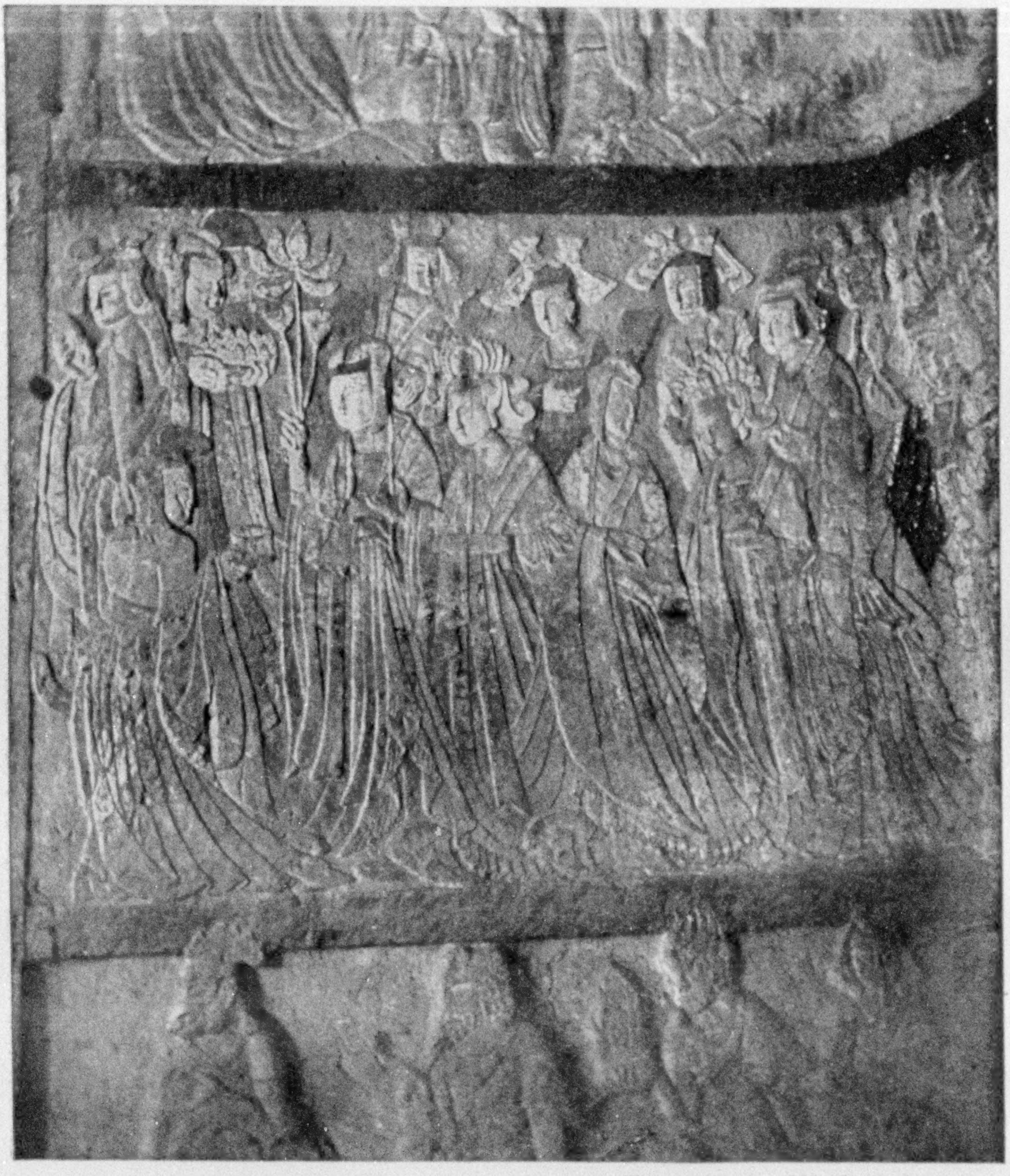

Photo by direction of Mr. Charles L. Freer

DETAIL OF CARVING ON THE WALL: PING YUNG TUNG, LUNG-MEN

The only sculptures at this place not of Buddhist character are several bas-reliefs, which, in the opinion of the French orientalist, Professor Chavannes, are representations of donors who have contributed to the extensions of this great decorative work. These afford an interesting study of costumes in China in the seventh century of our era.

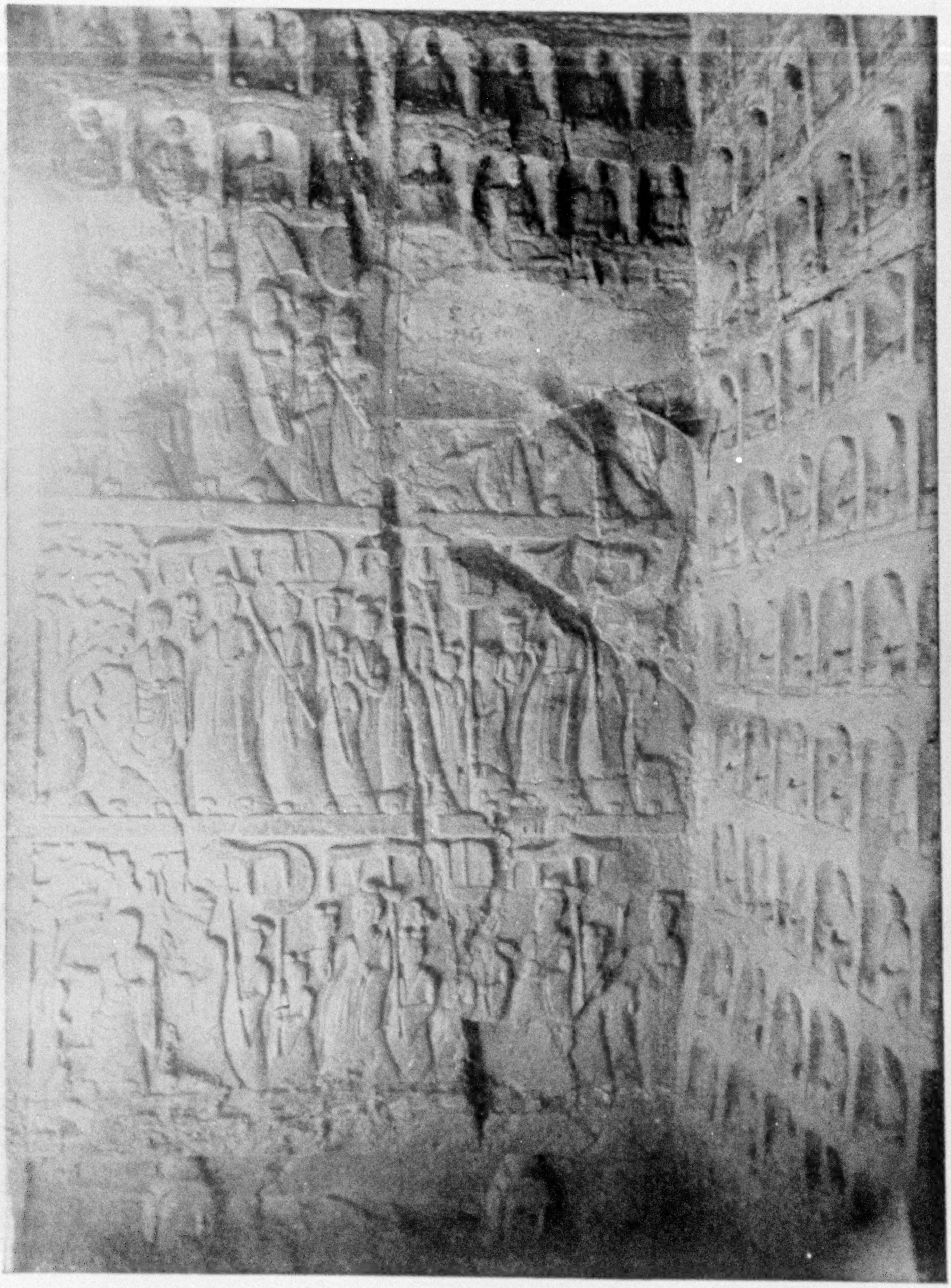

Photo by direction of Mr. Charles L. Freer

AN ELABORATE CORNER IN A ROCK RECESS AT LUNG-MEN

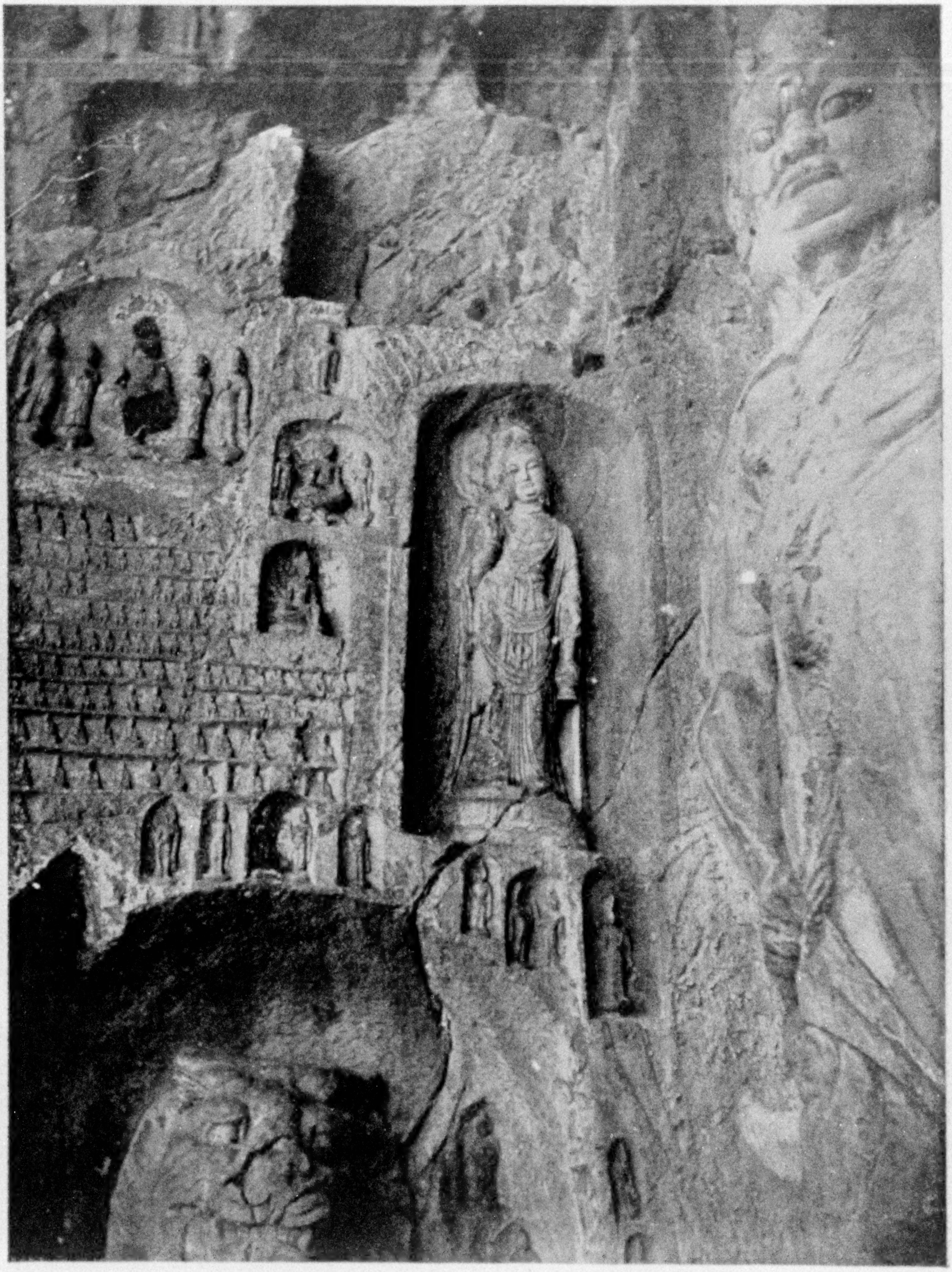

Photo by direction of Mr. Charles L. Freer

DECORATION OUTSIDE THE WAN-FOR-TUNG TEMPLE: LUNG-MEN

The three succeeding pictures are of the same temple

XUM

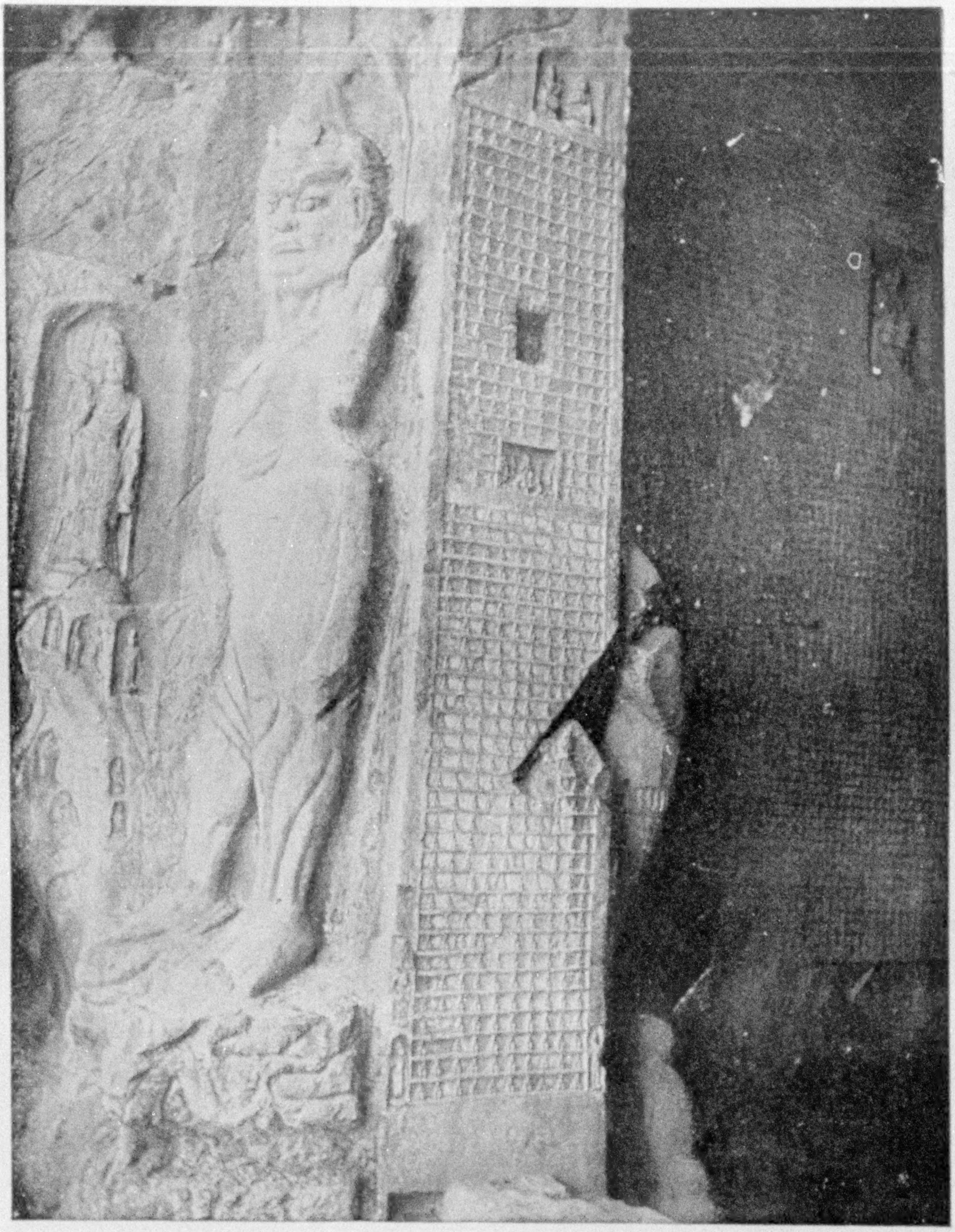

Photo by direction of Mr. Charles L. Freer

THE ENTRANCE TO WAN-FOR-TUNG, SHOWING THE SAME FIGURES AS IN THE PRECEDING PICTURE, AND THE DECORATIONS ON THE SIDE WALL OF ENTRANCE (SEE PAGES 1030, 1032, AND 1033)

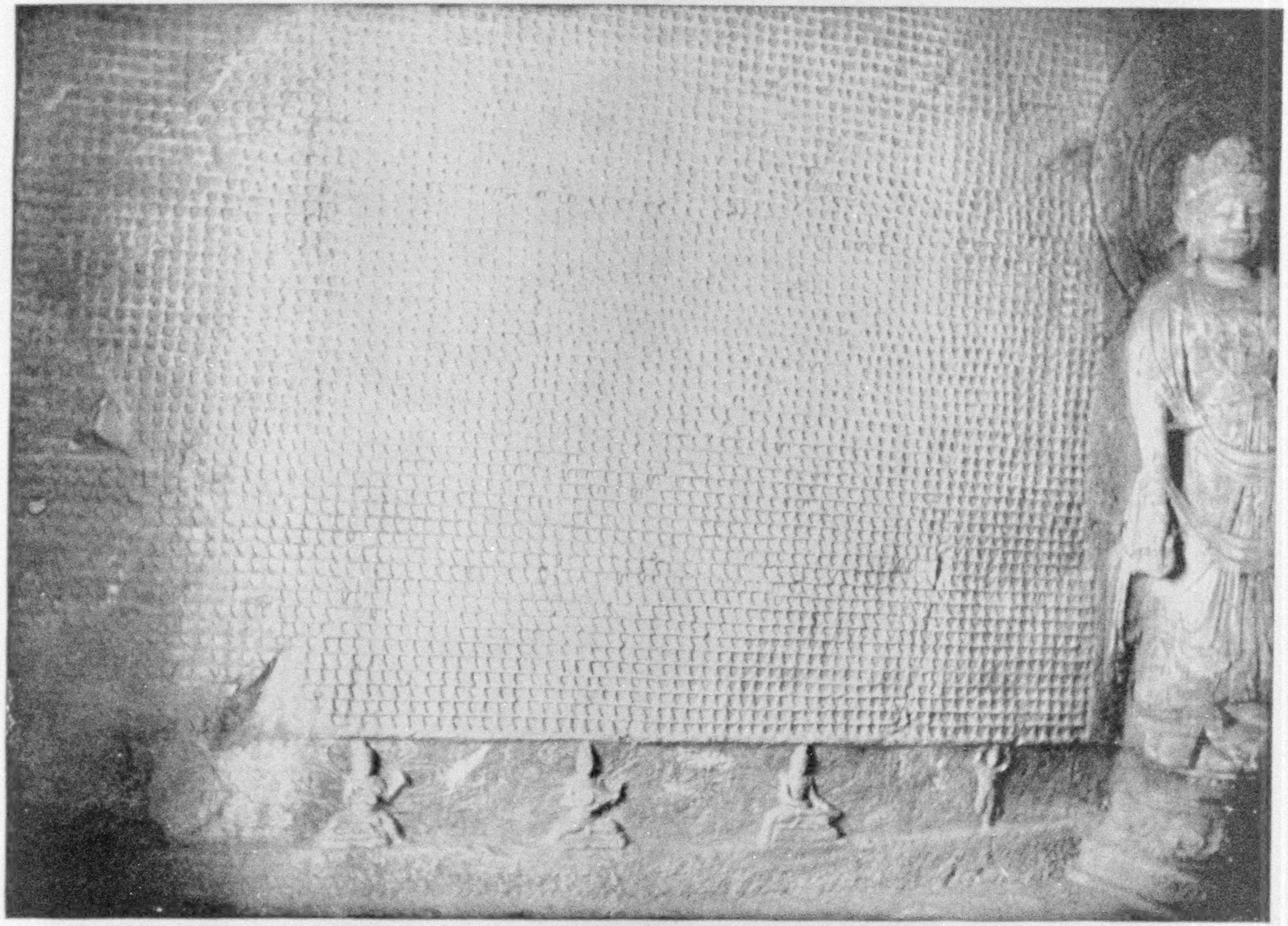

Photo by direction of Mr. Charles L. Freer

INSIDE OF WAN-FOR-TUNG TEMPLE

Note the thousands of figures of Buddha carved in the wall (see pages 1030, 1031, and 1033)

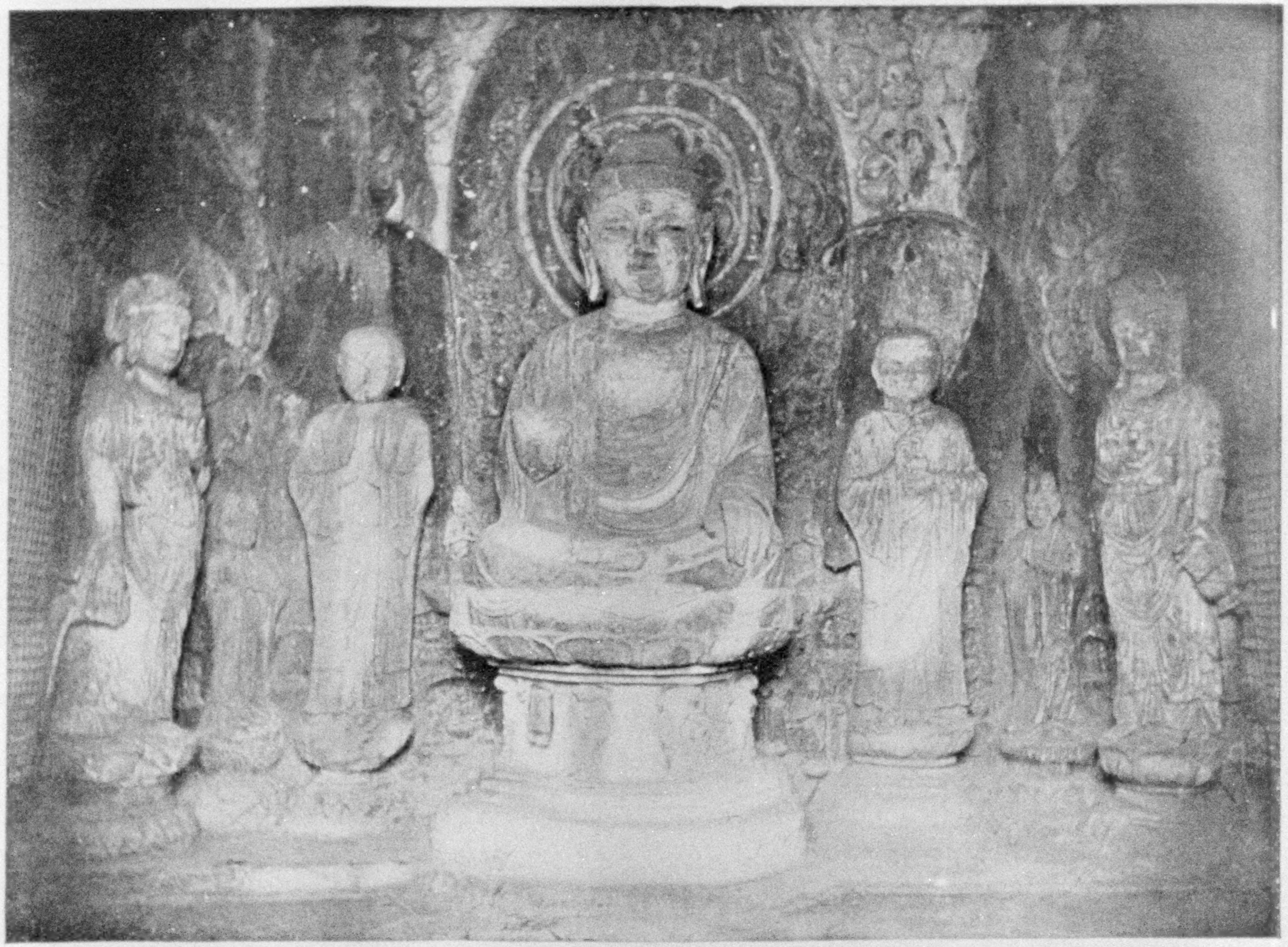

Photo by direction of Mr. Charles L. Freer

INSIDE OF WAN-FOR-TUNG TEMPLE: LUNG-MEN (SEE PAGES 1030, 1031, AND 1032)

A group which occurs with great frequency is that of Buddha attended by his two favorite disciples, Ananda and Kashiapa, and two Bobhisattwas

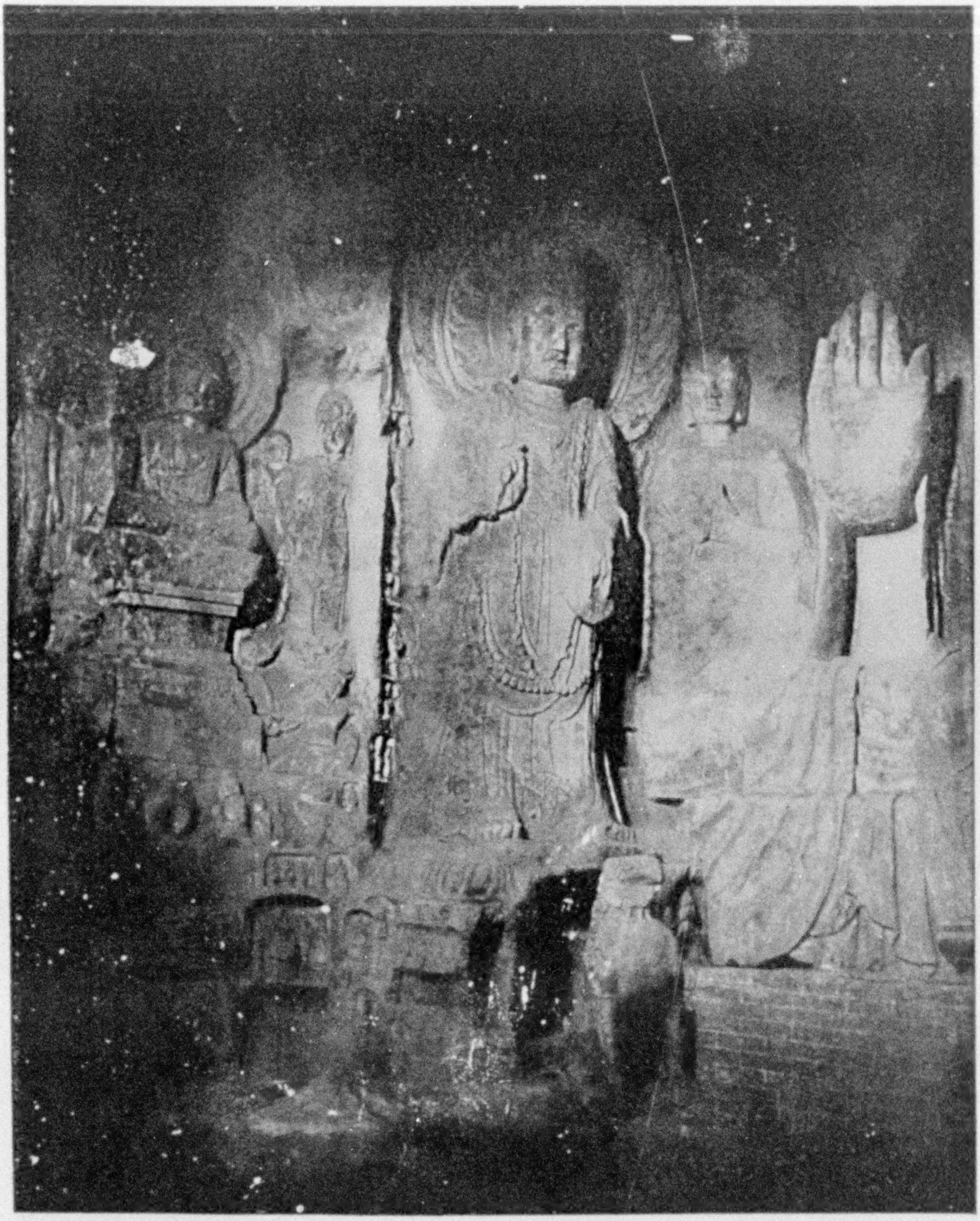

Photo by direction of Mr. Charles L. Freer

THE INTERIOR OF A TEMPLE, TYPICAL OF THE MANY HUNDREDS OF SACRED RECESSES CARVED IN THE ROCK CLIFFS OF THE RIVER AT LUNG-MEN

Vast and solemn ruins of the capitals of known and unknown kingdoms are to be seen throughout all China. Shangtu, the "Cambaluc" of Coleridge, has been located west of the important Mongol market at Dolonnor. Here the remains of the walls of Kublai Khan's summer capital may still be seen. Inscriptions have been found here, and it is possible that the future antiquary, studying the spot with scientific scrutiny, may make discoveries of value.

Marco Polo, the most distinguished traveler among Europeans to visit China, gave to the world what is still the only existing record of the wonders of Shangtu, of which Coleridge dreamed and wrote striking words not hitherto regarded as fact. It has been stated that Coleridge knew nothing of Shangtu, and that he derived the images of his poem from a dream, the figment of which he coined into golden measures when he had risen from his couch.

Only Shangtu and Kara Korum, of the Mongols, have been described for us by our own travelers. Perhaps a composite of the foreign accounts of these two places, with what we see of Peking, Nanking, and Hsi-ngan that still exist, together with the fragmentary accounts from Chinese history and literature, will afford approximate pictures of what must have been the aspect and substance of those wonderful places—Yang-hsia, Po, Yin, Hao, Lo-yi, Hsien-yang, Chang-an, and Lo-yang, or even of Hang-chau.

There is one feature of the capital that has remained unchanged. From a time whose identity is lost in past ages the rulers of the Chinese people have preserved an imperial shrine to Shang Ti, the God of Heaven now represented in the Altar of Heaven at Peking, perhaps the most beautiful and impressive shrine the Chinese have ever built. It is one of the most notable of China's monuments and perhaps the simplest altar to deity existing, as it is one of the most impressive man-made places in the world. The altar is of white marble, circular, perhaps 200 feet in diameter, and constructed in its details with reference to the plan of the universe. It stands amid ancient and solemn junipers, which, according to the Chinese, are the most stately and dignified objects of the vegetable kingdom.

We cannot claim to know much about China's monuments until a more careful examination has been made of the writings of China's antiquaries.

No doubt an investigation more thorough than has been made by Chinese in recent generations will result in contributing one of the most brilliant chapters to the records of the world's antiquities. It is a subject that is one of the interests of man universal and of nations in their aspect as clay in the hands of the Universal Potter.

Pumpelly, the veteran American explorer in China, has visited Turkestan in the interest of archæology. Rockhill, Huntington, Laufer, and others have contributed to American research into China's antiquities. But if for no other reason, the monuments of China must always have a special interest for Americans because of the beautiful Porcelain Tower of Nanking, immortalized in Longfellow's poem "Keramos". The part pertaining to the pagoda, which is no less beautiful than Coleridge's "Cambaluc," may be extracted from its setting as follows:

"Turn, turn my wheel, the human race,
Of every tongue, of every place,
Caucasian, Coptic, or Malay,
All that inhabit this great earth,
Whatever be their rank or worth,
Are kindred and allied by birth,
And made of the same clay.

"And yonder by Nankin, behold
The Tower of Porcelain, strange and old,
Uplifting to the astonished skies
Its ninefold painted balconies,
With balustrades of twining leaves,
And roofs of tile beneath whose eaves
Hang porcelain bells that all the time
Ring with a soft, melodious chime;
While the whole fabric is ablaze
With varied tints all fused in one
Great mass of colour like a maze
Of flowers illumined by the sun.

"Turn, turn, my wheel. What is begun
At daybreak must at dark be done;
Tomorrow will be another day,
Tomorrow the hot furnace flame
Will search the heart and try the frame
And stamp with honour or with shame
These vessels made of clay."

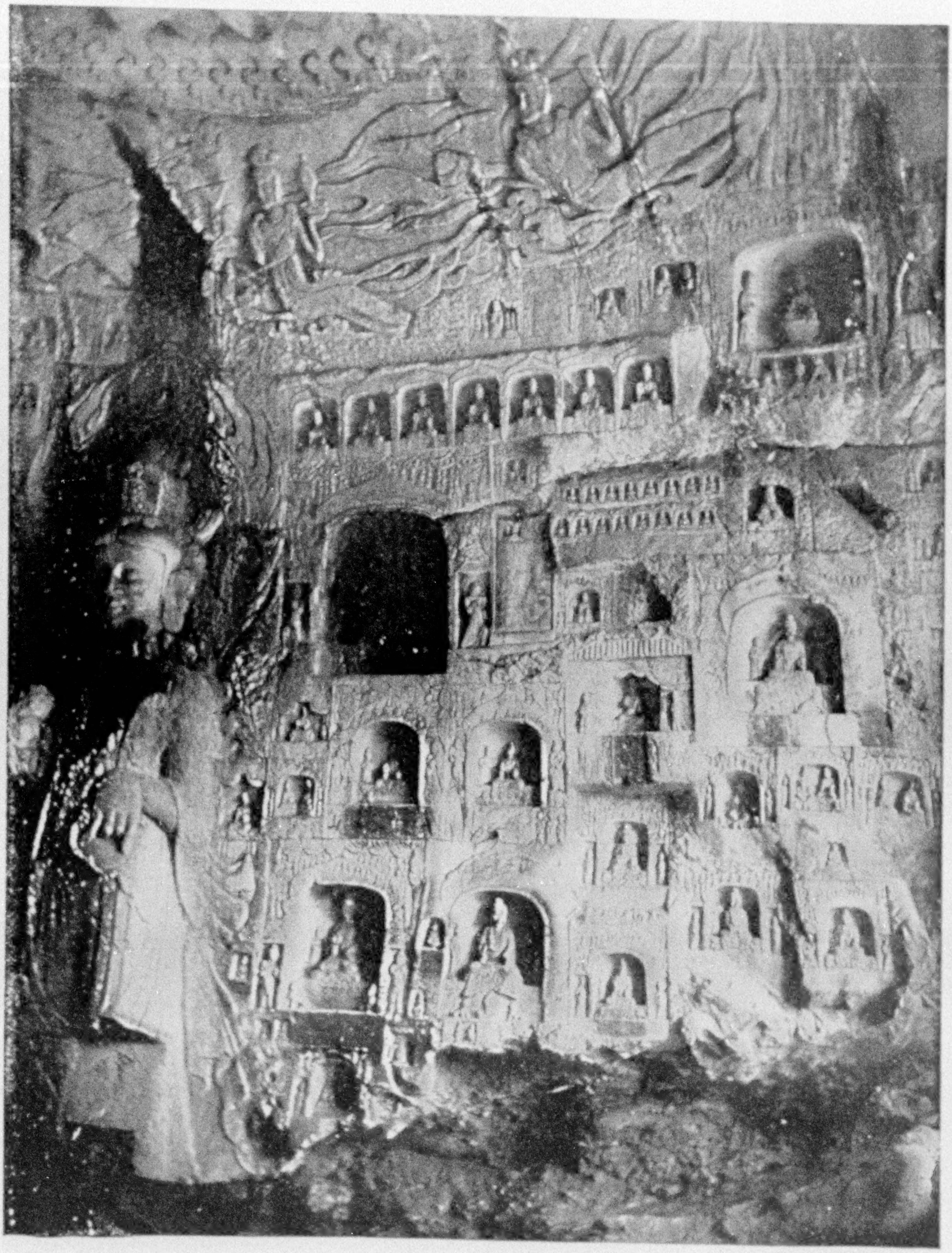

Photo by direction of Mr. Charles L. Freer

THIS PICTURE AND THE NEXT THREE ILLUSTRATIONS SHOW THE INTERIOR OF THE LOW-GOON-TUNG TEMPLE, ONE OF THE MOST EXTRAVAGANT IN DECORATION YET DISCOVERED

All the figures in this temple, as in all the other temples, have been carved out of the rock

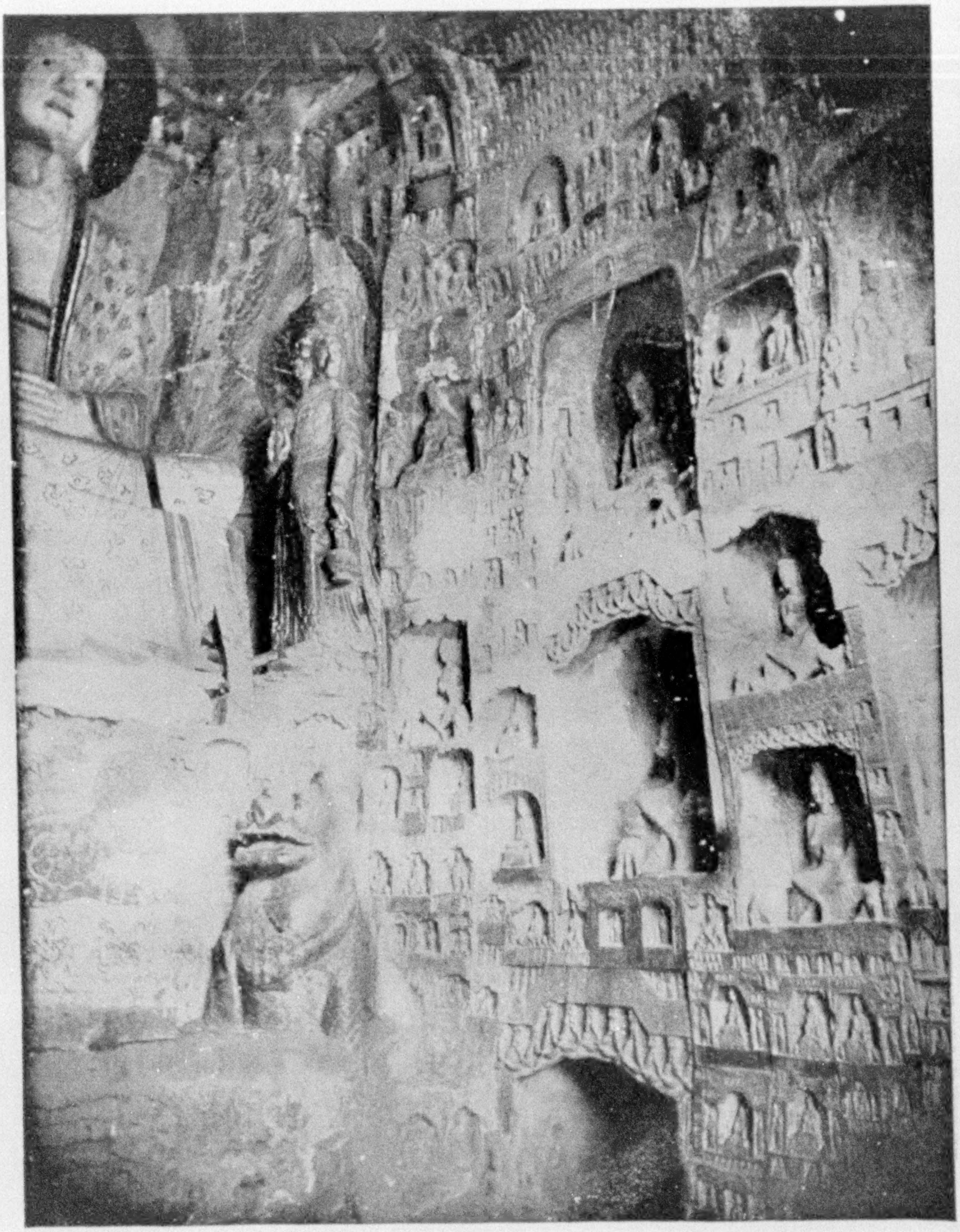

Photo by direction of Mr. Charles L. Freer

INTERIOR OF THE LOW-GOON-TUNG TEMPLE AT LUNG-MEN (SEE ALSO PAGES 1036, 1038, AND 1039)

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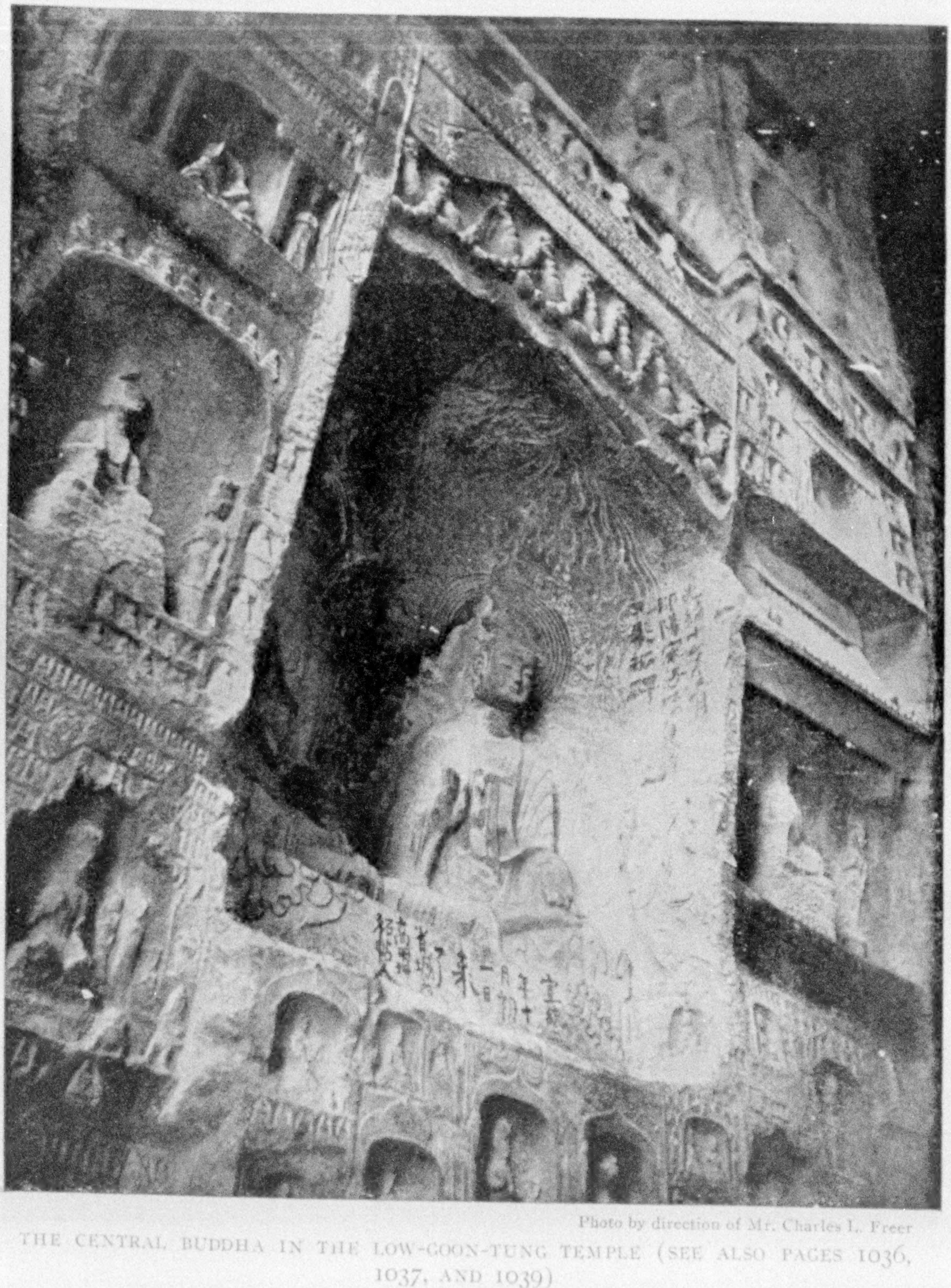

Photo by direction of Mr. Charles L. Freer

THE CENTRAL BUDDHA IN THE LOW-GOON-TUNG TEMPLE (SEE ALSO PAGES 1036, 1037, AND 1039)

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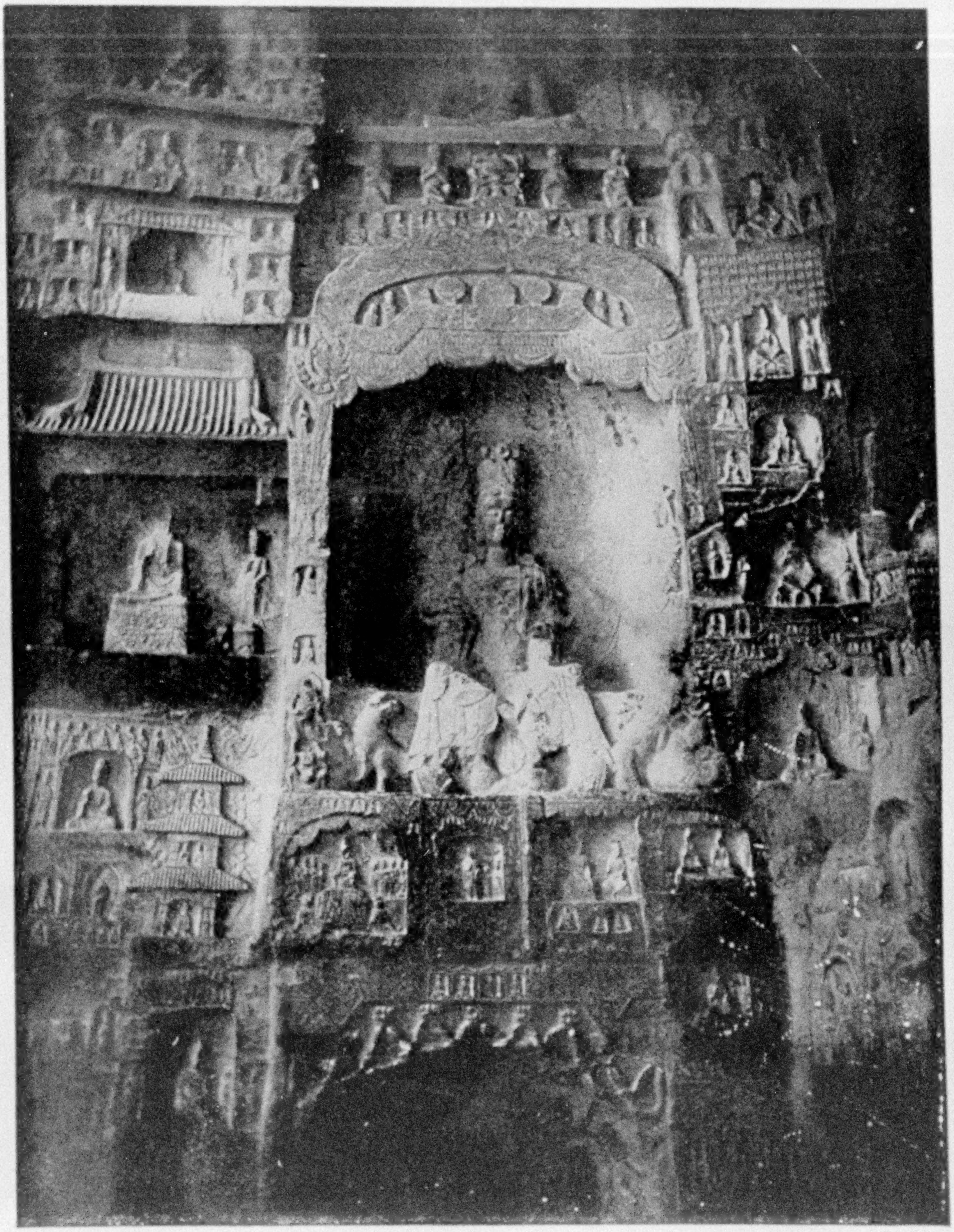


Photo by direction of Mr. Charles L. Freer

ANOTHER VIEW OF THE INTERIOR OF THE LOW-GOON-TUNG TEMPLE (SEE ALSO PAGES 1036, 1037, AND 1038)

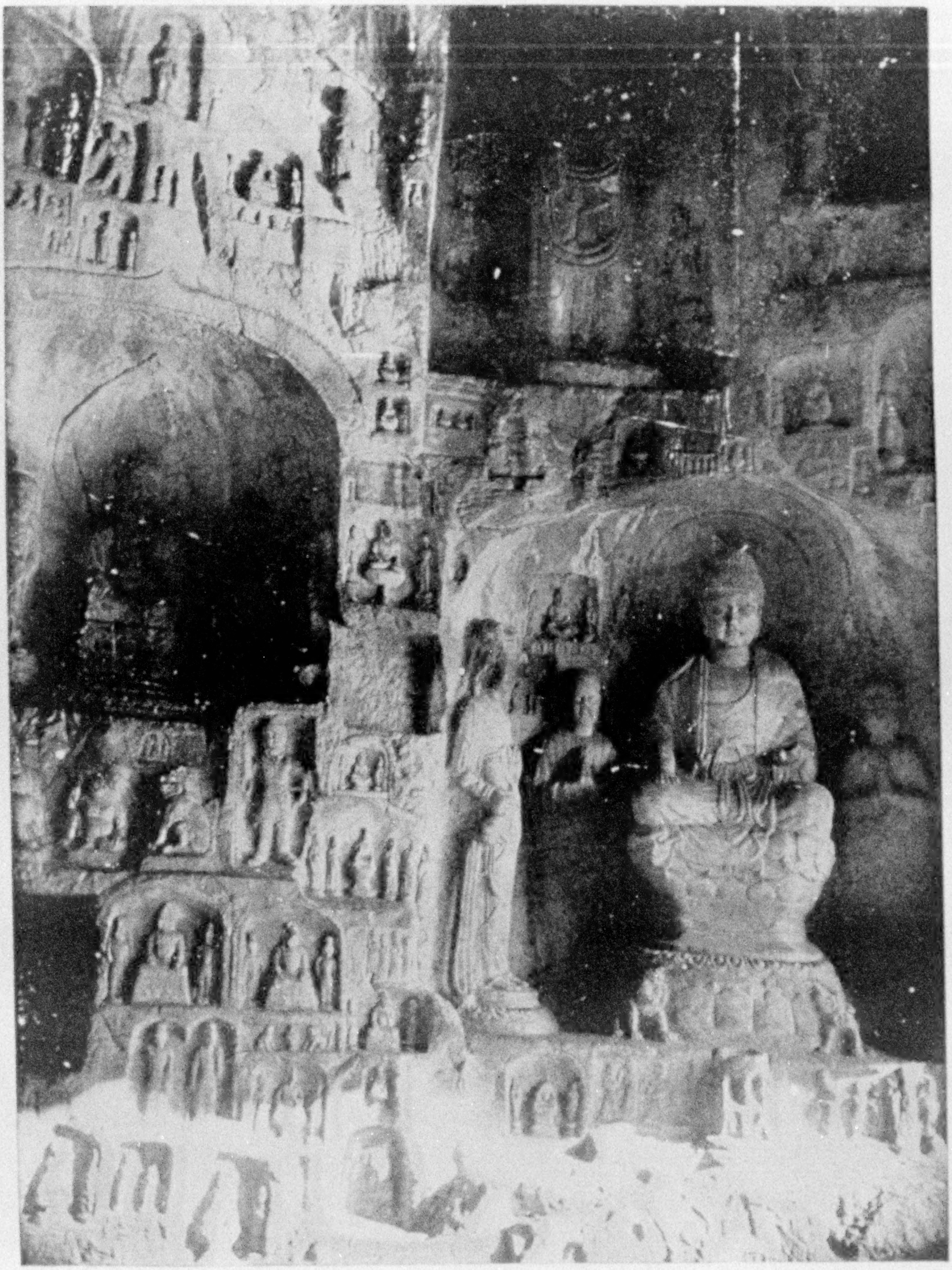
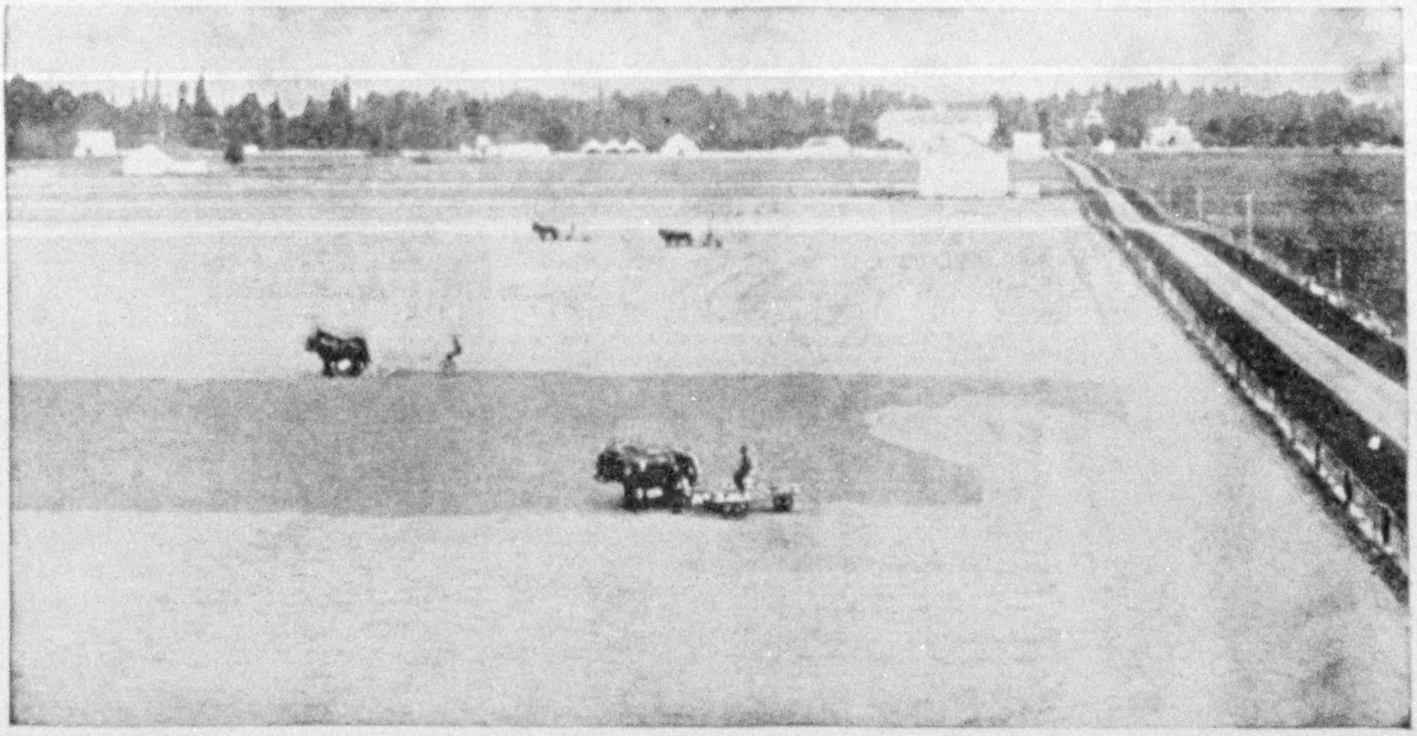


Photo by direction of Mr. Charles L. Freer

THE INTERIOR OF A VERY LAVISHLY DECORATED TEMPLE AT LUNG-MEN

All the figures, as well as the cave itself, have been carved out of the rock cliff



Showing the general topography, arrangement of buildings, and the careful manner of preparing seed bed on the "home" Broadmead Farm.

WE OWN AND OFFER

$110,000 First Mortgage Farm Land Bonds

(Secured by a Large Farming Tract Located 18 Miles from the Capital of Oregon)

To Yield 6%

$10,000 due July 1, 1914
$10,000 due July 1, 1915
$20,000 due July 1, 1916
$20,000 due July 1, 1917
$25,000 due July 1, 1918
$25,000 due July 1, 1919

Total Issue Authorized and Outstanding, $110,000. Interest January 1st and July 1st.

Any or all bonds maturing after July 1, 1914, may be redeemed on that date, or on any interest date thereafter, at 102 and accrued interest, upon thirty days' published notice.

TRUSTEES: Newton F. Hawley and Edward P. Wells, of Minneapolis.

SUMMARY

1. Closed first mortgage of $110,000 secured by 2,300 acres of intensively cultivated and highly productive land.
2. Land lies in famous Willamette Valley of Oregon—convenient to Portland and Salem, and having two railroad stations on the farm.
3. Every acre of the land can be profitably farmed.
4. Value of security over 2½ times the amount of loan. Market value of similar land about $150 per acre.
5. Not irrigated—annual rainfall of 40 inches being sufficient.
6. Bonds guaranteed as to principal and interest by personal endorsement by officers and directors of the issuing Company, whose aggregate wealth is reported to be over three-quarters of a million dollars.
7. The Trustees are Mr. N. F. Hawley, who is Treasurer of the Farmers & Mechanics Savings Bank of Minneapolis, and Mr. E. P. Wells, President of Wells & Dickey Company.
8. This tract of land examined in person by Mr. O. M. Corwin, Vice-President of Wells & Dickey Company.
9. We recommend these bonds to investors.

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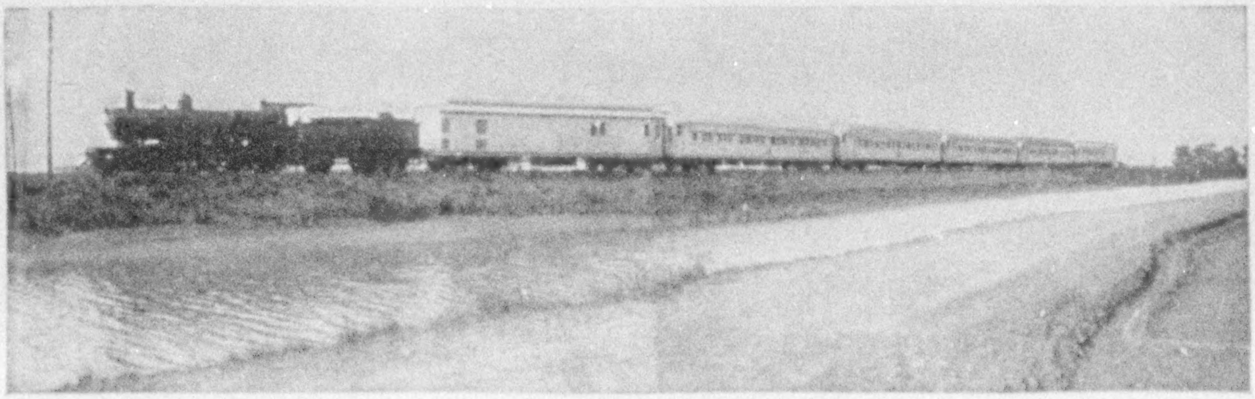

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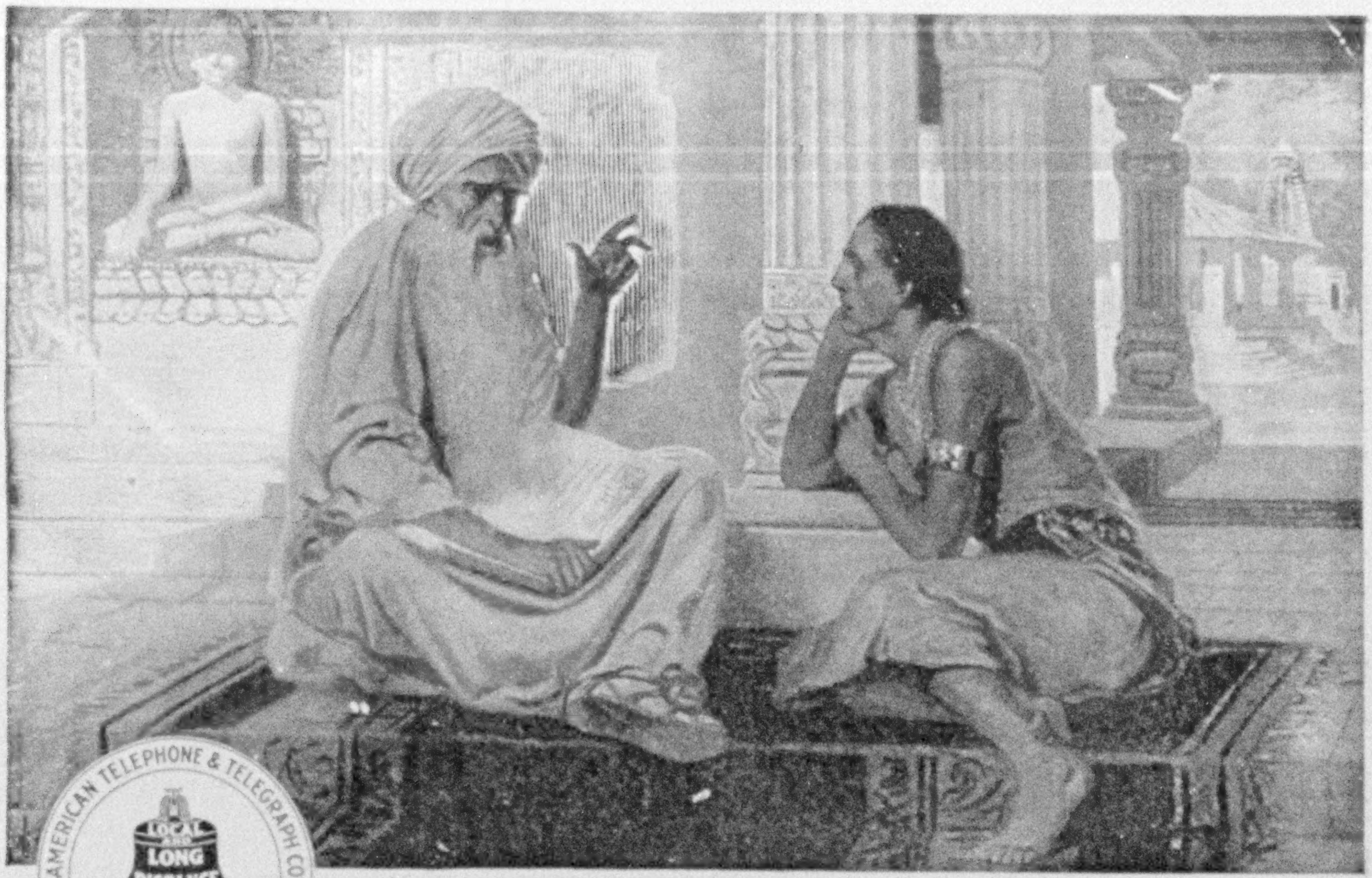

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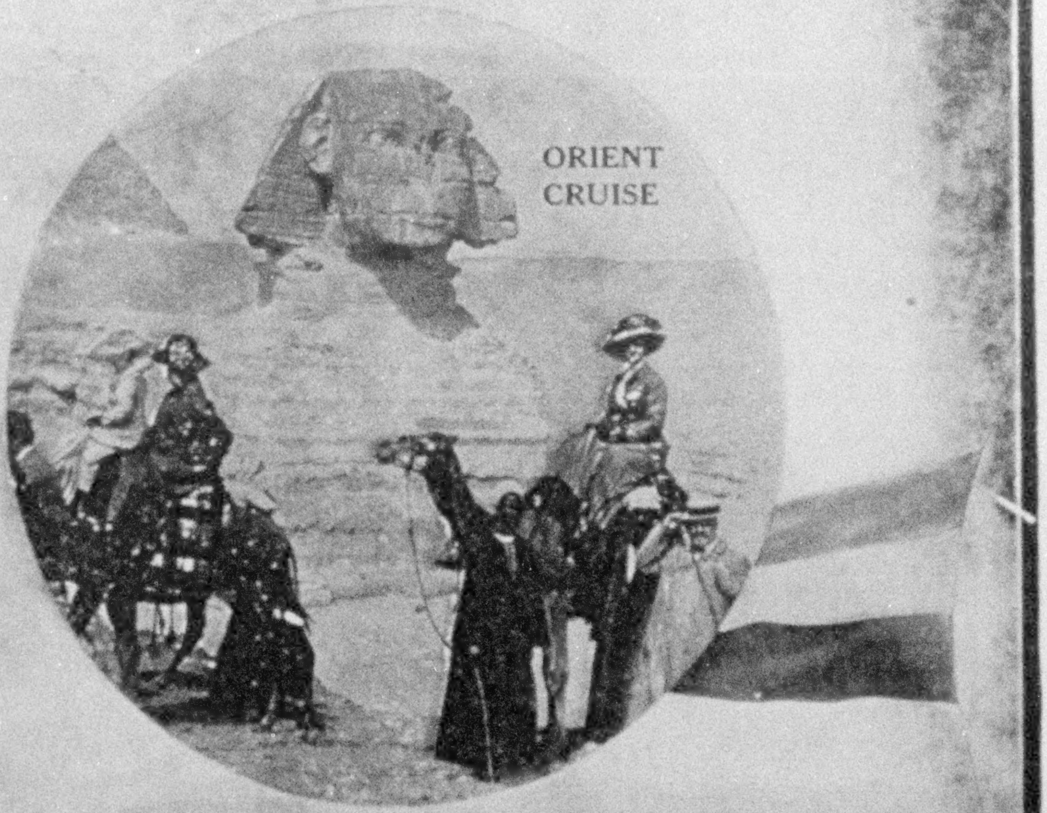

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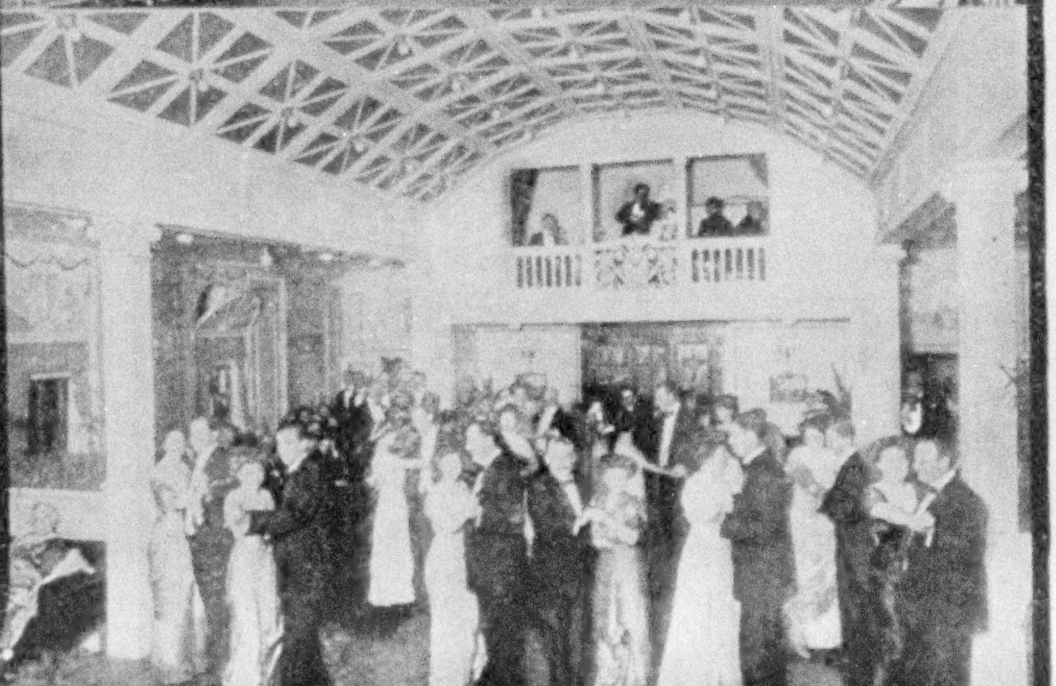

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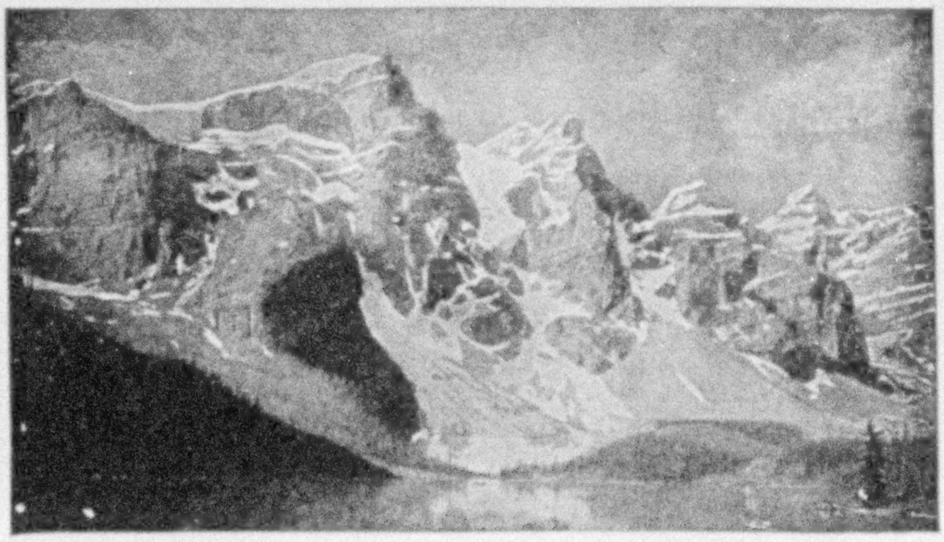

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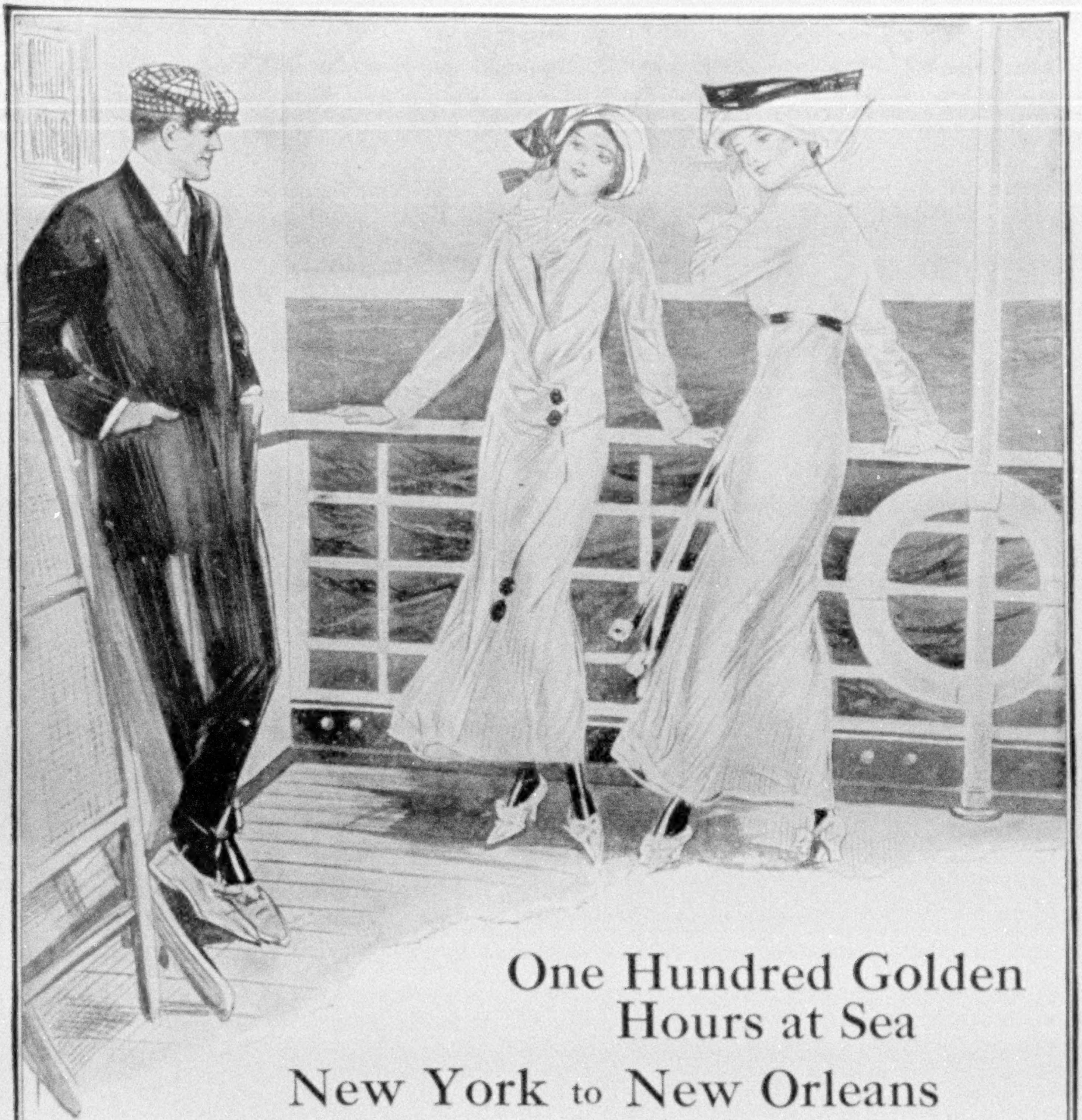

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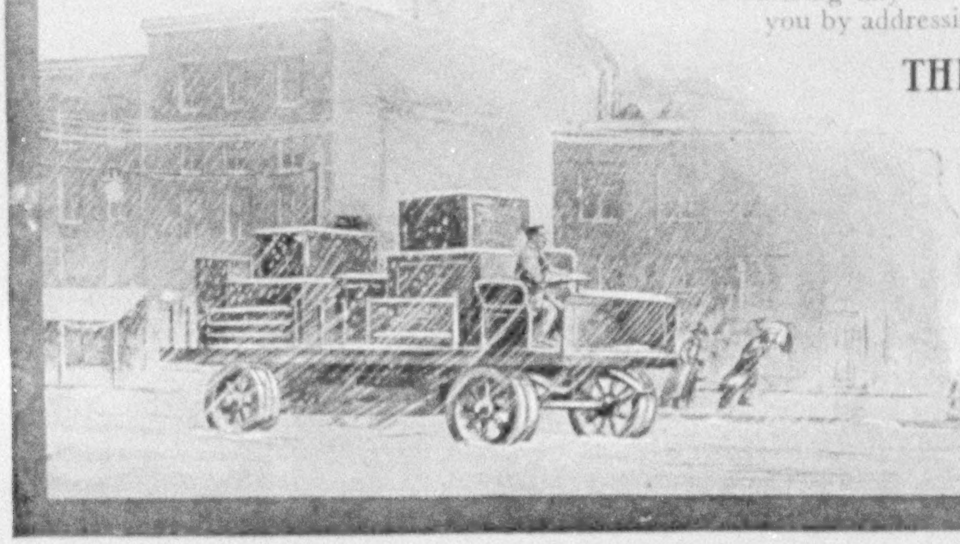

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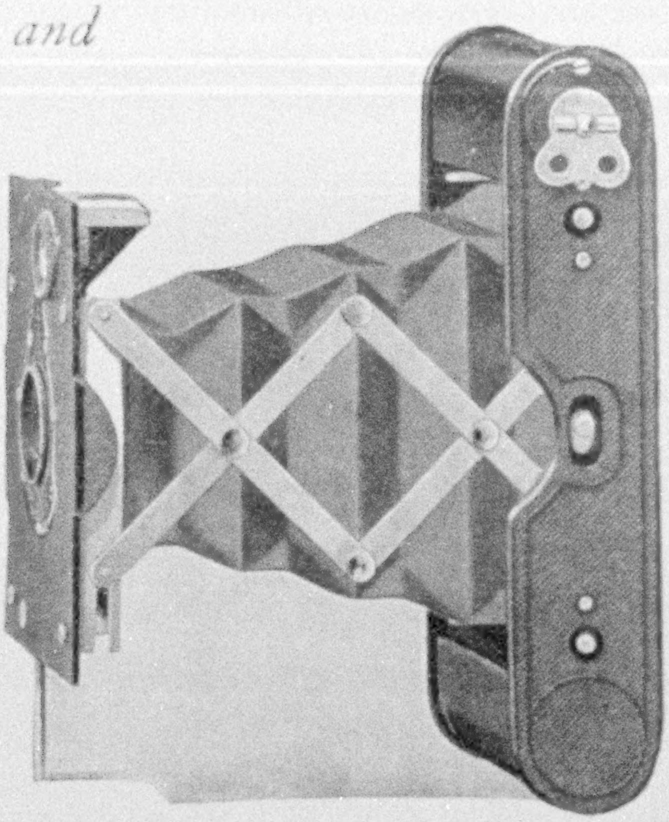

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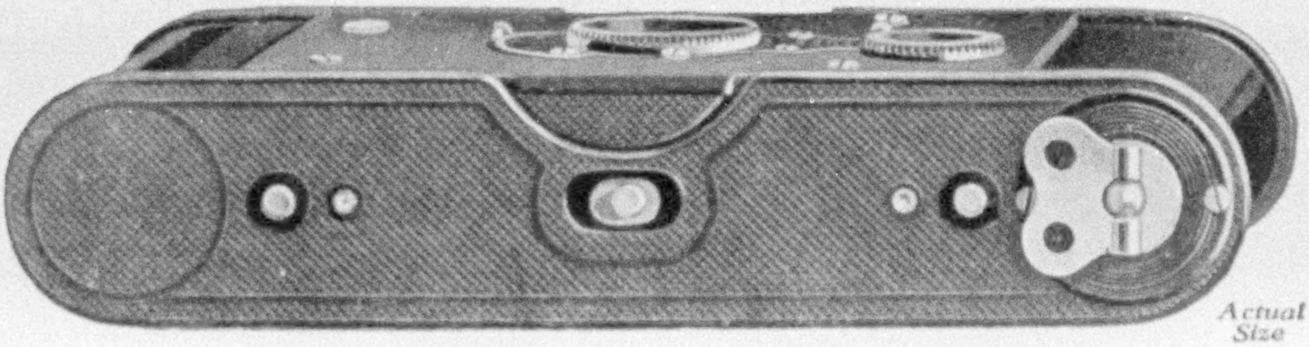

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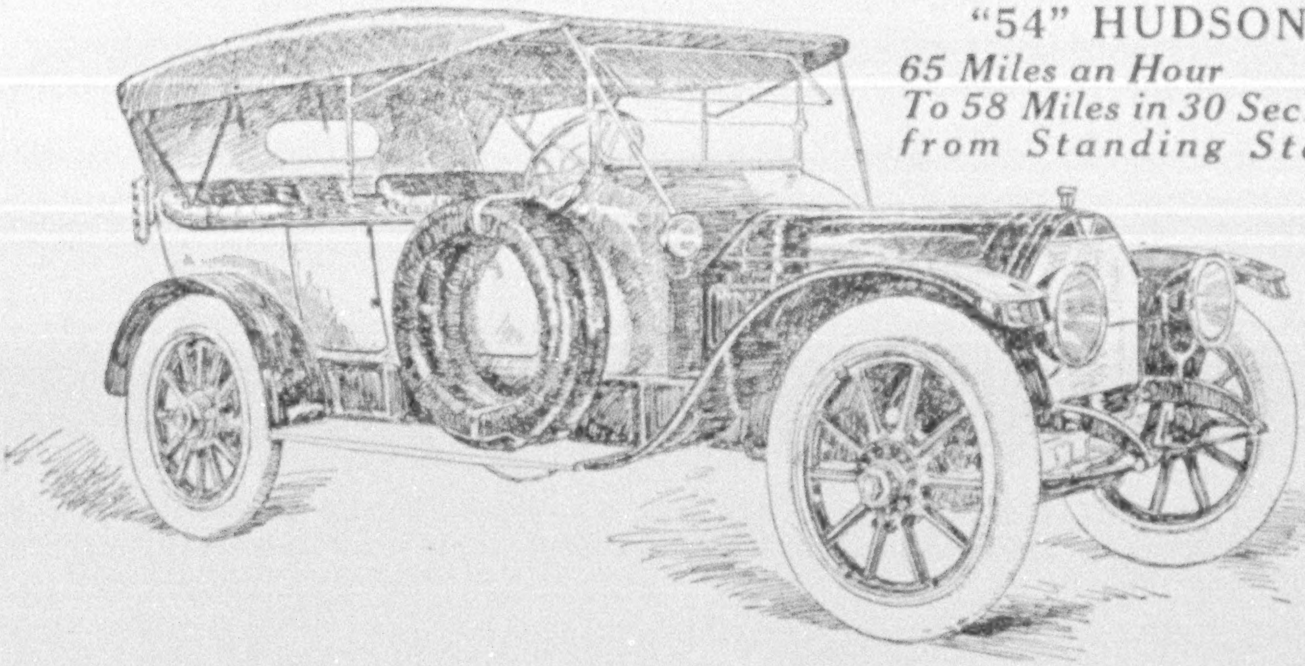

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The "37" has a 118-inch wheel base.

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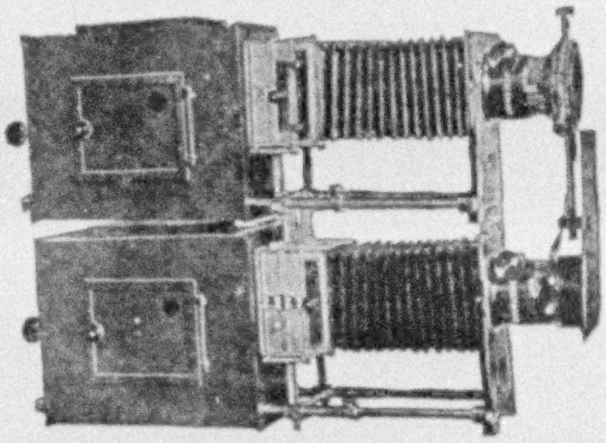

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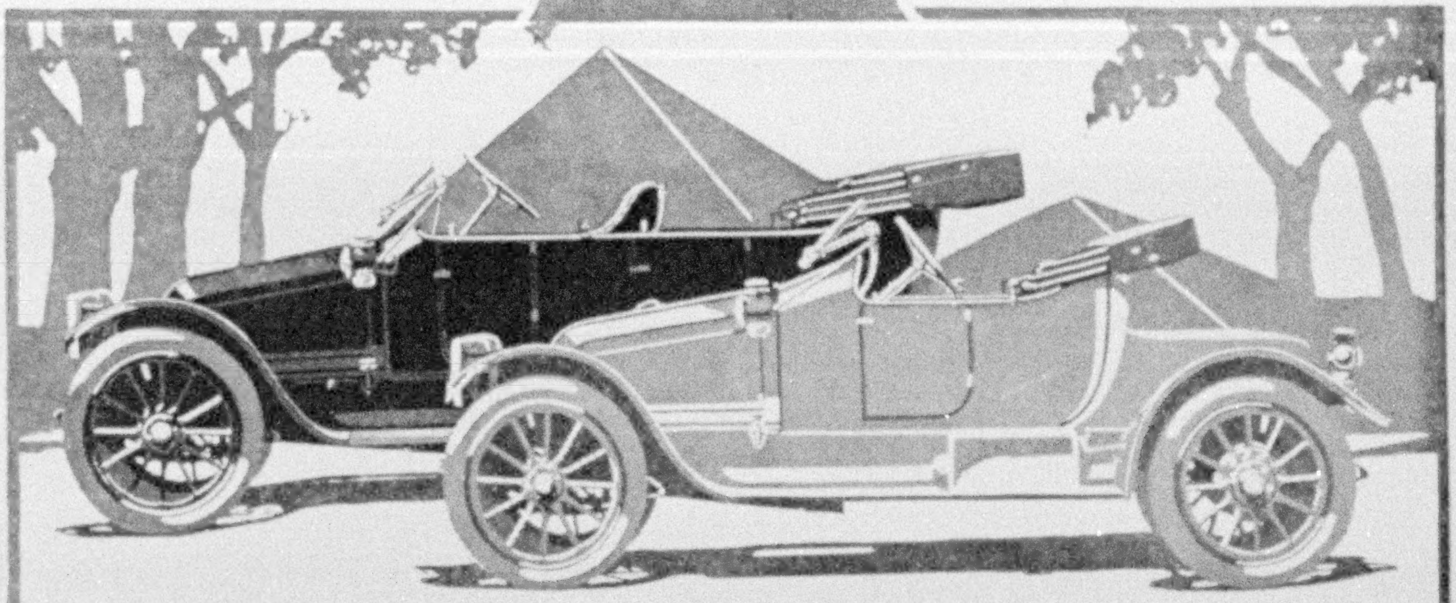

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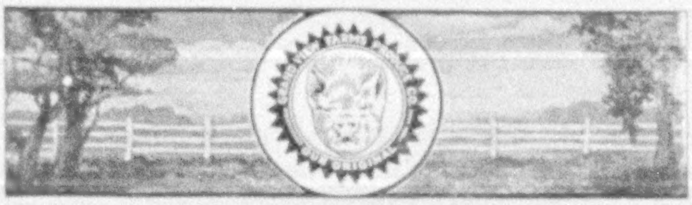

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"Grand View" Country Sausage

is made right on the Farm where the finest and freshest materials are always instantly at hand. Made, too, from those famous old Pennsylvania and Virginia family recipes of generations ago, which call for pedigree porkers, the purest spices, and the cleanest of methods in making.

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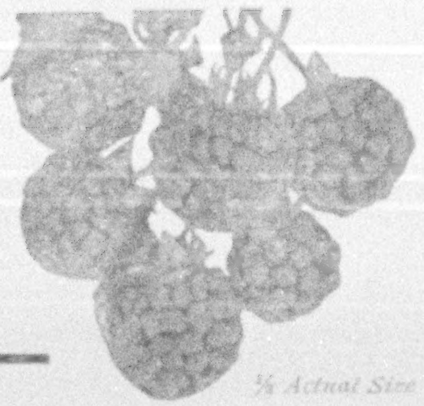

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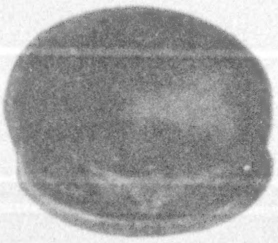

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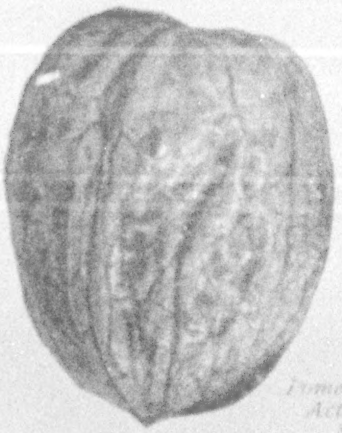

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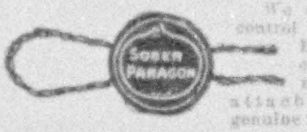

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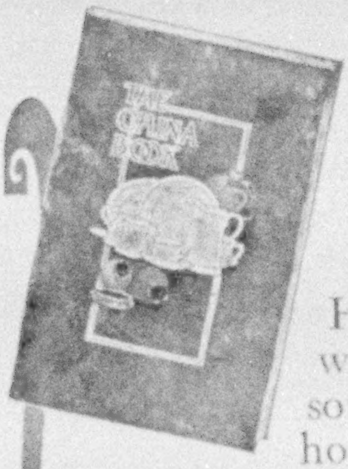

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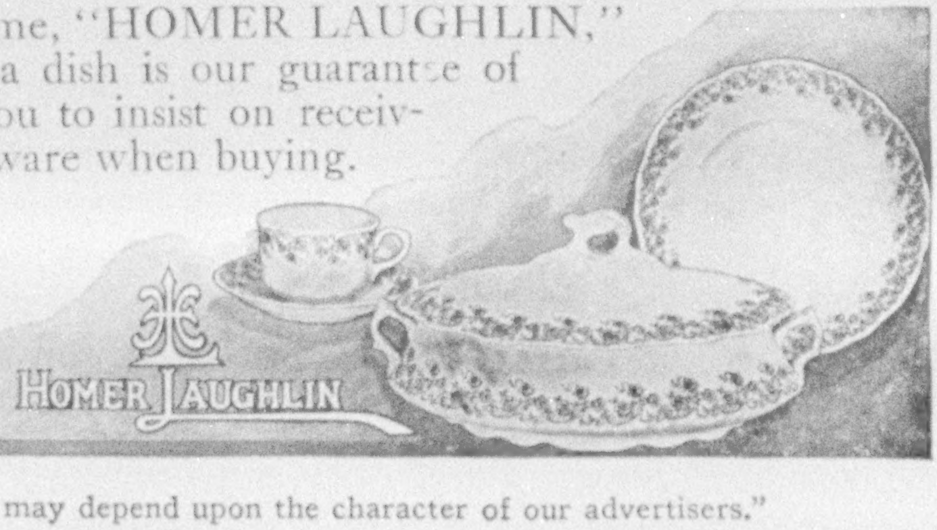

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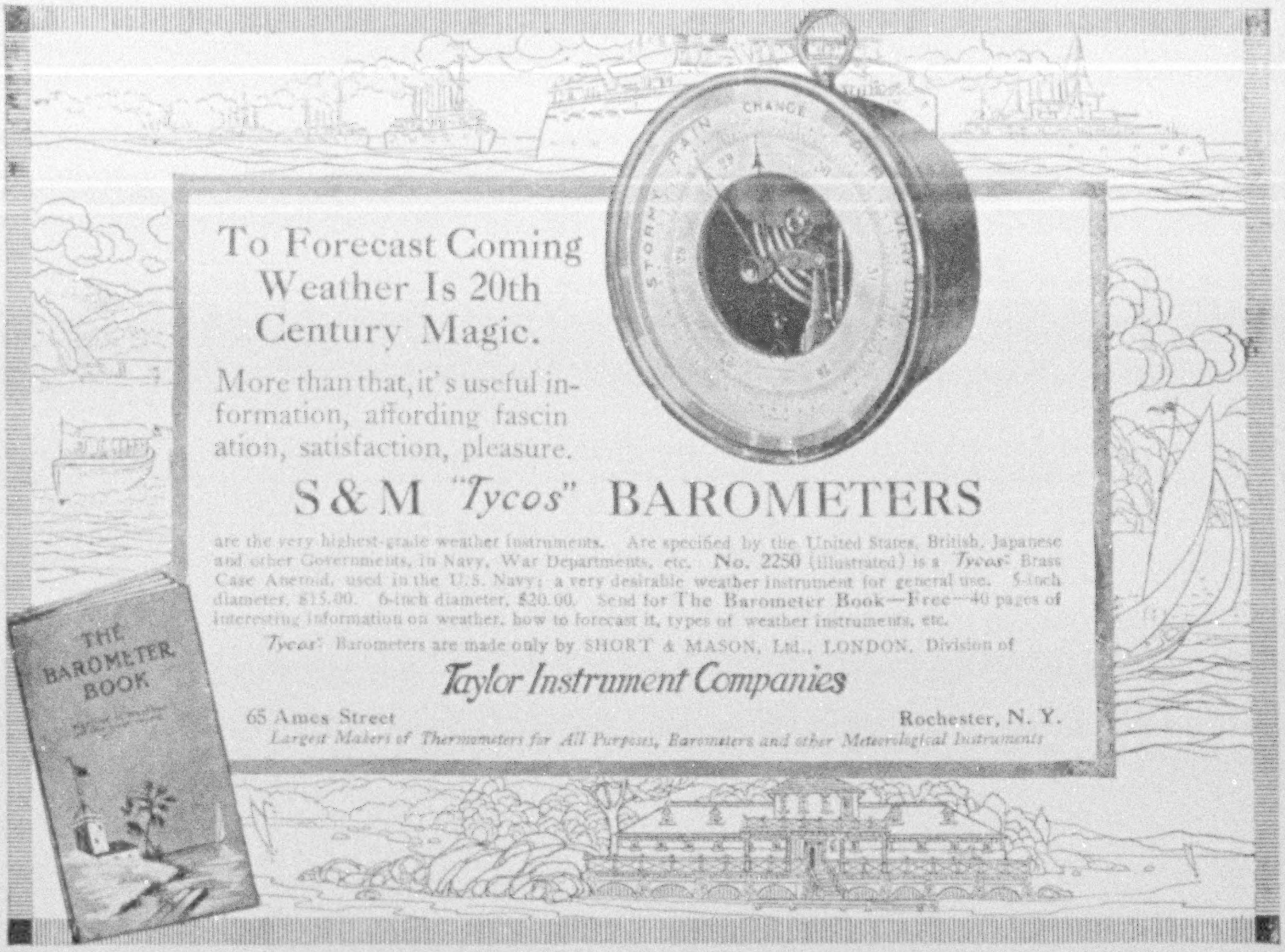

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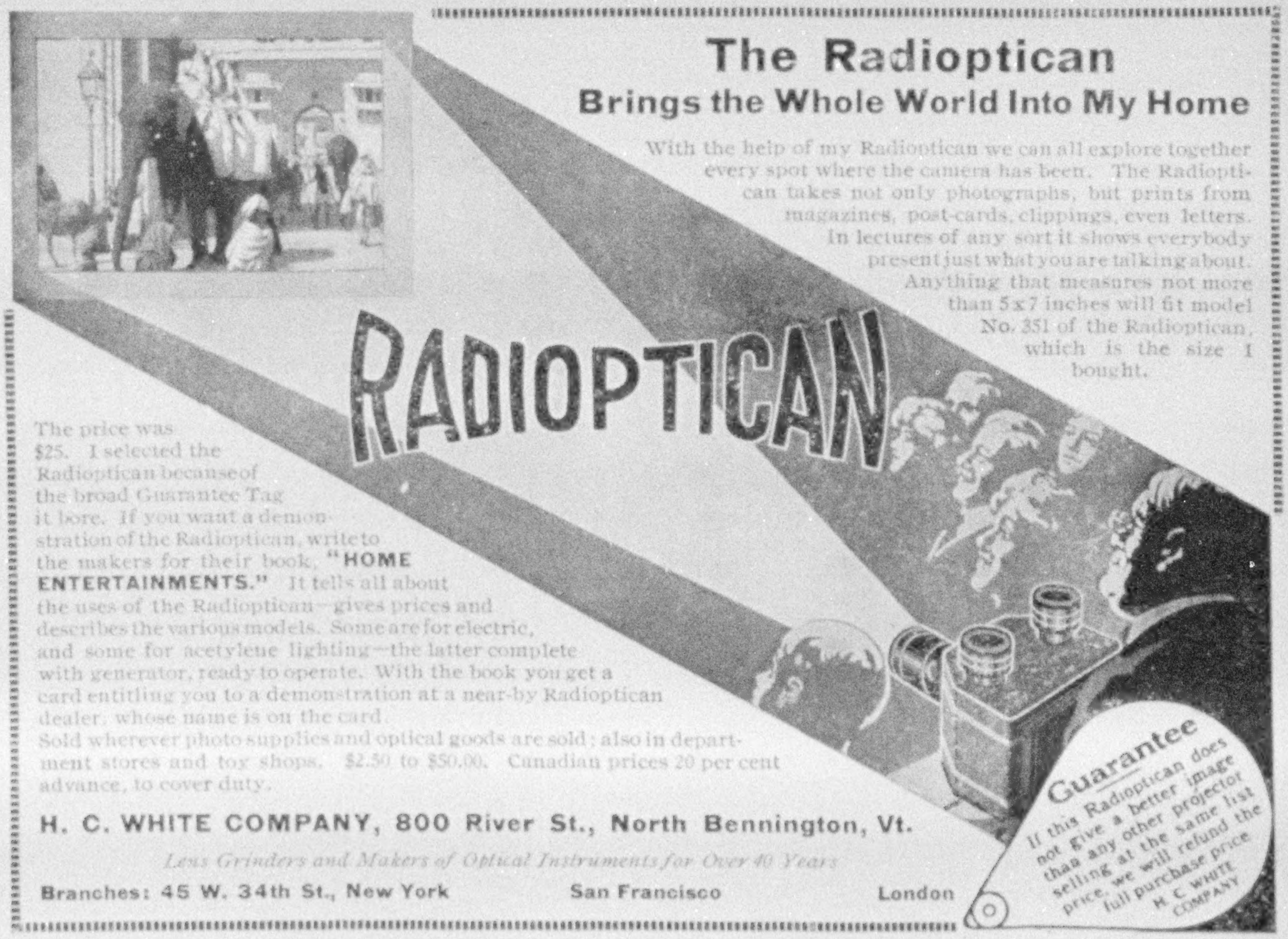

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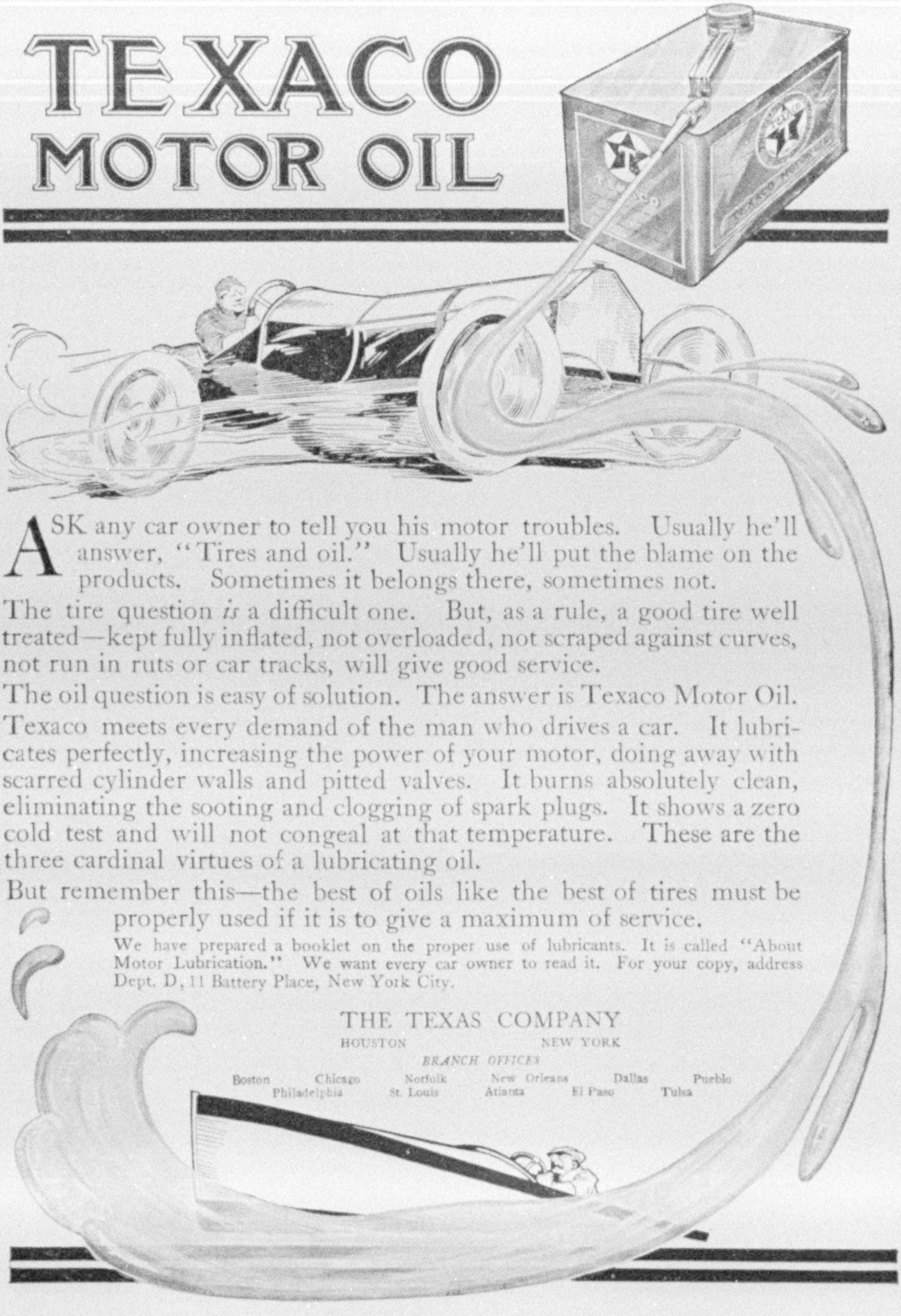

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MOTOR OIL

ASK any car owner to tell you his motor troubles. Usually he'll answer, "Tires and oil." Usually he'll put the blame on the products. Sometimes it belongs there, sometimes not.

The tire question *is* a difficult one. But, as a rule, a good tire well treated—kept fully inflated, not overloaded, not scraped against curves, not run in ruts or car tracks, will give good service.

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But remember this—the best of oils like the best of tires must be properly used if it is to give a maximum of service.

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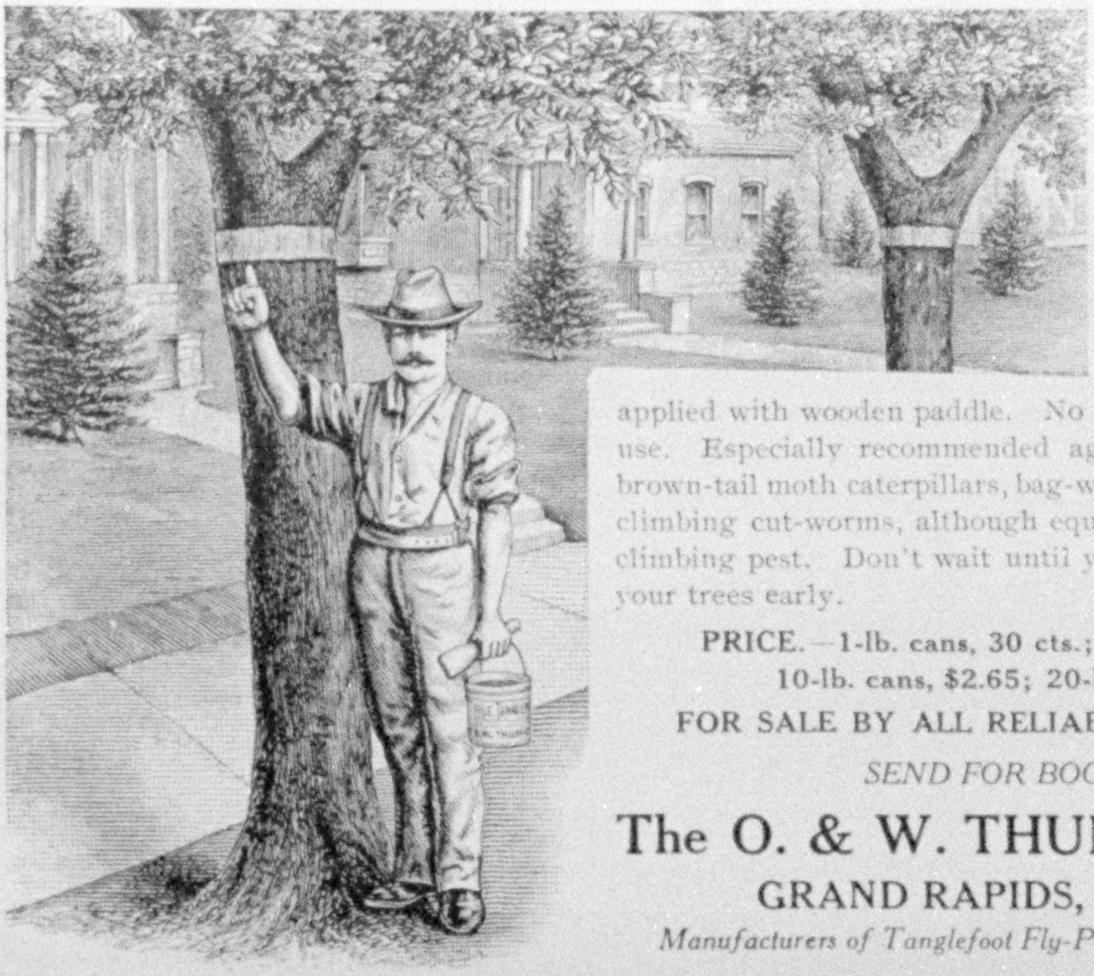

A harmless, sticky substance. Applied directly to tree trunks. Remains effective (rain or shine, warm or cool) three months and longer fully exposed to weather. One pound makes 8 to 9 lineal feet of band. No apparatus required; easily applied with wooden paddle. No mixing; always ready for use. Especially recommended against tussock, gypsy or brown-tail moth caterpillars, bag-worms, canker-worms, and climbing cut-worms, although equally effective against any climbing pest. Don't wait until you see the insects—band your trees early.

PRICE.—1-lb. cans, 30 cts.; 3-lb. cans, 85 cts.; 10-lb. cans, $2.65; 20-lb. cans, $4.80

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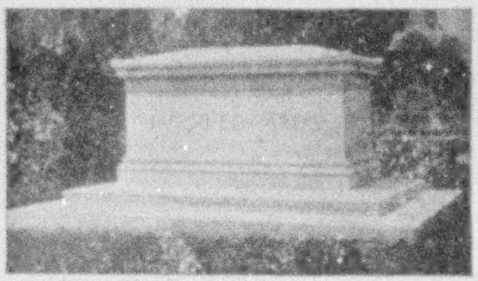

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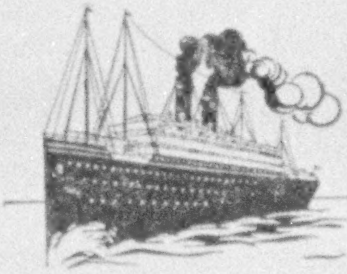

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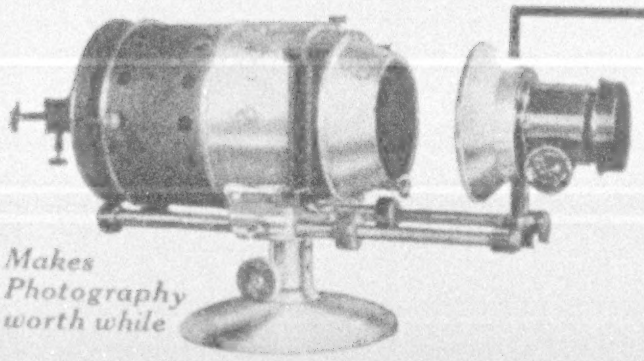

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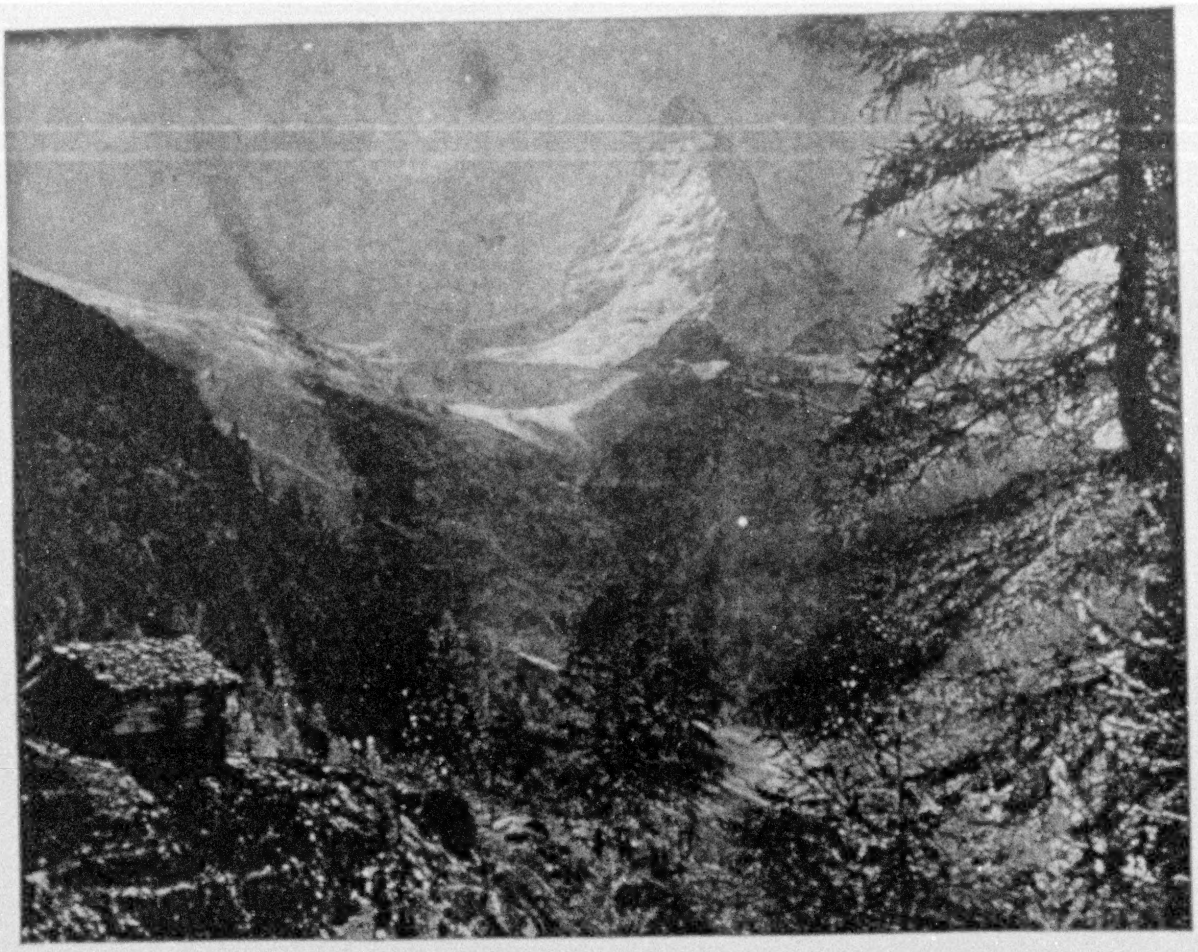
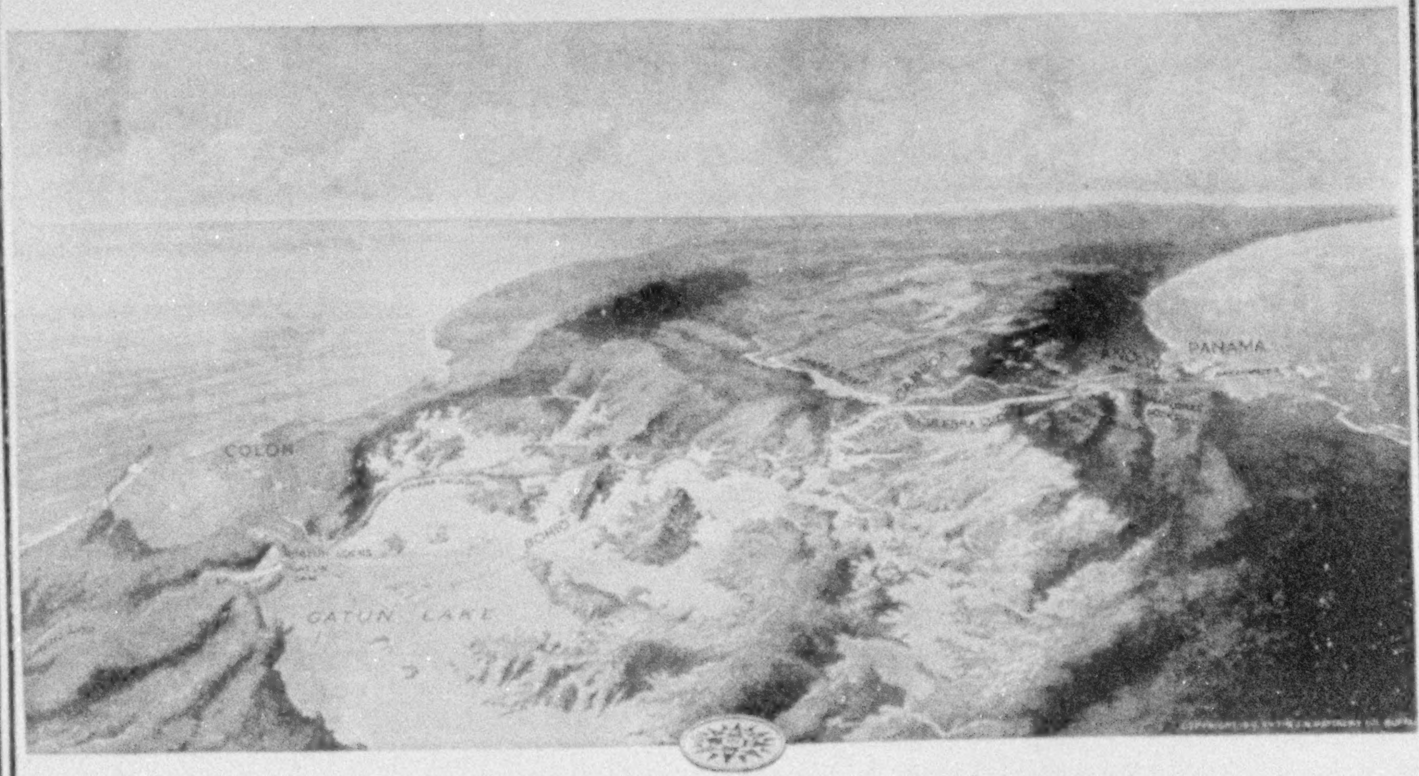


The Majesty of the Matterhorn



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By Charles D. Walcott, Secretary of the Smithsonian Institution

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The Palms

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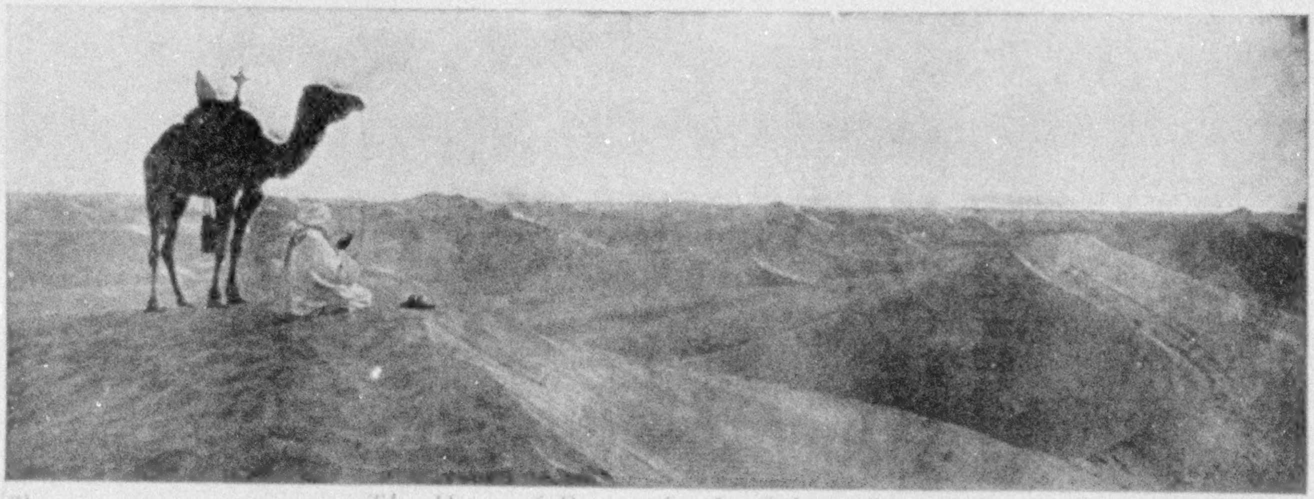

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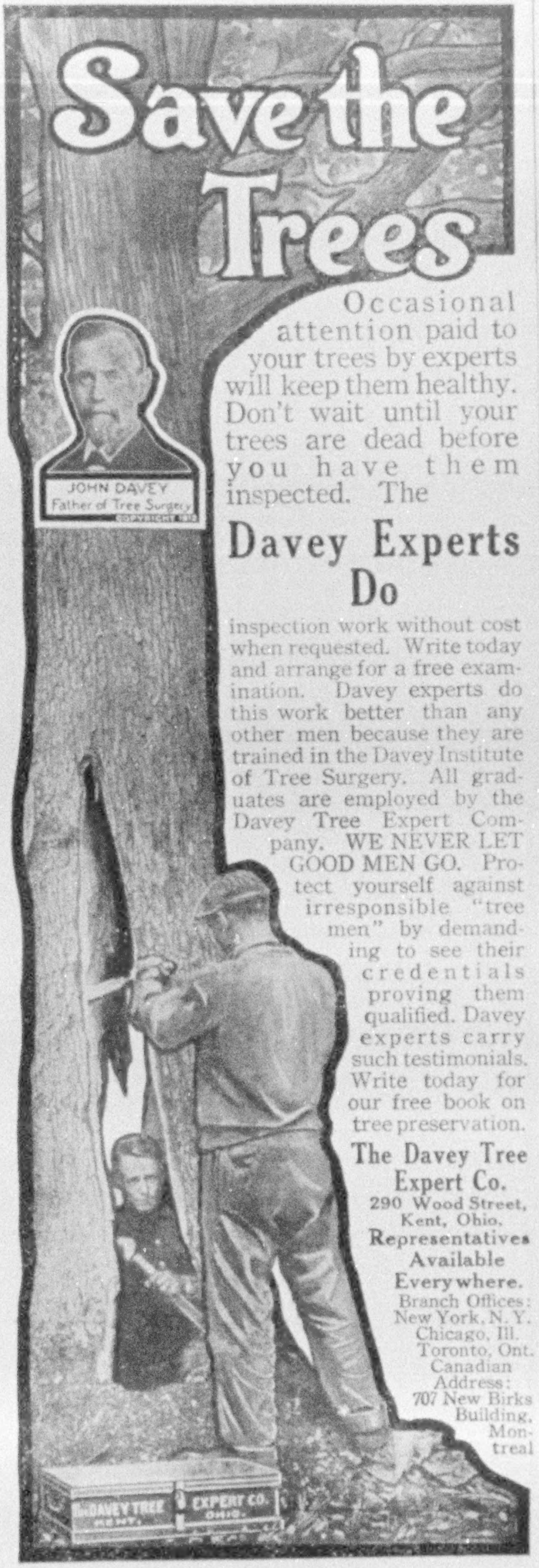

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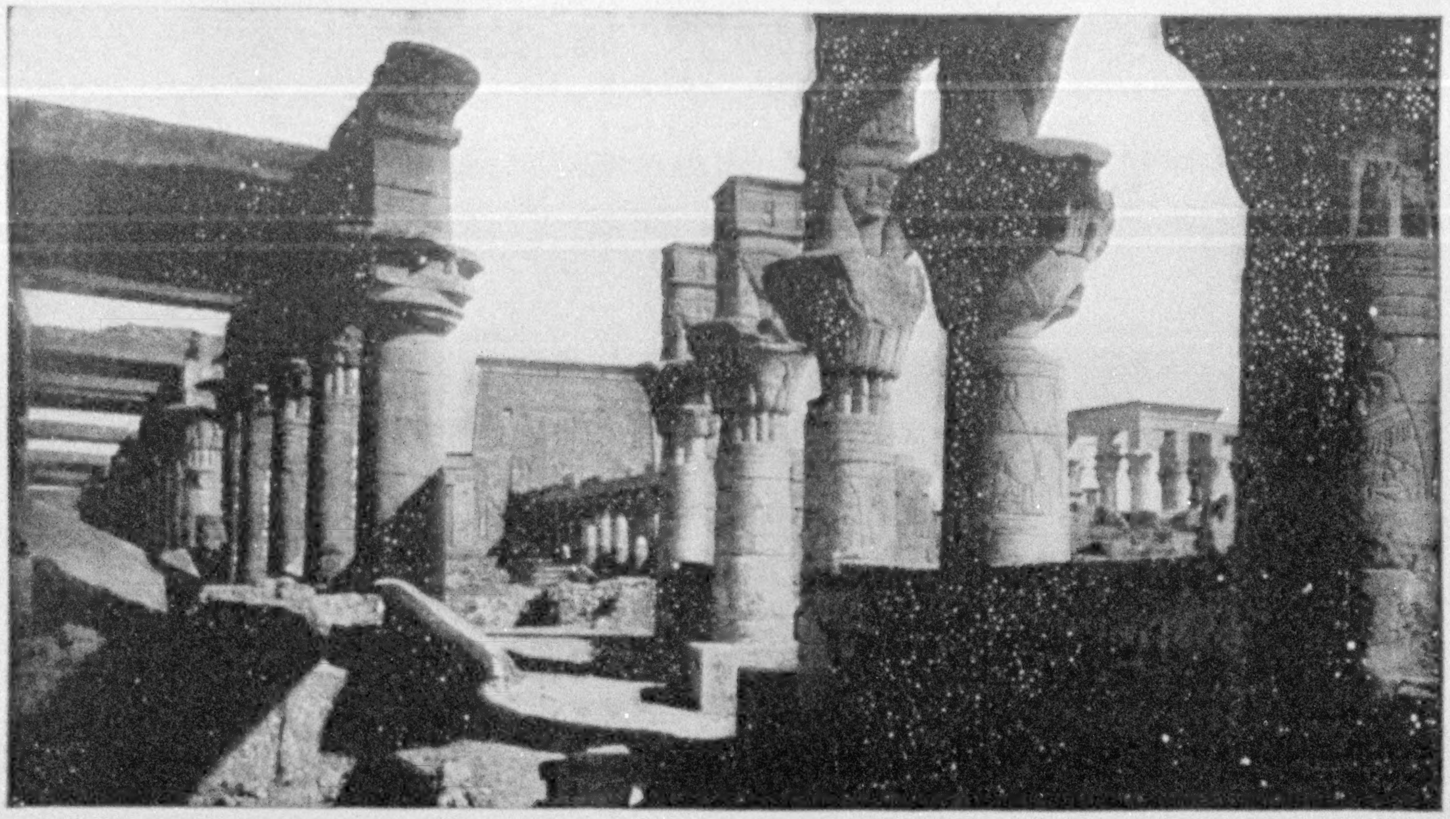

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